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**BATTLEFIELD REALISM: THE IMPACT OF OPPOSING FORCE (OPFOR)
ON FRIENDLY FORCE TASK PERFORMANCE WITH IMPLICATIONS FOR
THE NATIONAL TRAINING CENTER**

VOLUME II

OPFOR LESSONS LEARNED

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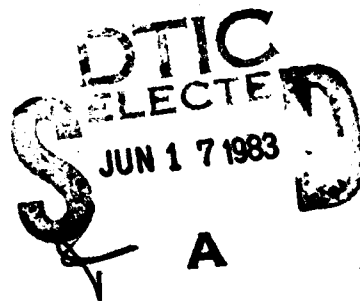


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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The main objective of the research was to determine if any US job tasks needed to be modified or changed as a result of the manner in which the OPFOR (Threat) operated. It was reasoned that new training objectives specifically designed to counter the OPFOR would be needed only in those job areas where job behavior resulting from past training was ineffective in dealing with the OPFOR (Threat). Two field exercises were selected for study in which well-trained OPFOR groups employing realistic Soviet doctrine and tactics participated. Structured inter- (CONT'D)		

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views and questionnaires were developed and interviews with participants were conducted. Some of the major findings were: (1) US Forces must learn to do their tasks faster and with fewer errors; there are no second chances, (2) significant changes in job content were not required, but improvement of existing skills are, (3) intensive and repetitive training against OPFOR tactics is the only way to be prepared, (4) Home Station Training (HST) will play a major role in preparing units to beat the OPFOR. Without a realistic OPFOR in HST, US units may find the National Training Center a painful experience.

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OVERVIEW

Volume II: OPFOR Lessons Learned, presents to the interested reader, and especially military trainers responsible for developing related training programs, the detailed description and field results of the RED THRUST and ARMVAL field exercises. Interviews with commanders and crewmen from both opposing forces expressing their opinions and experiences concerning OPFOR are presented in Chapters 1 and 2. Chapter 3 is concerned primarily with the training experiences which took place prior to the ARMVAL evaluation. Of primary interest were the differences between normal (current) training and the training experienced in preparing for encountering an OPFOR unit.

Chapter 4 is divided into two sections. Section I contains the US players' responses, Section II the OPFOR players' responses. The players' comments are summarized concerning the three combat missions. The comments deal to a large extent with the tactics employed by both sides. Of primary concern was the identification of tasks which needed to be modified, or added, due to the way in which the OPFOR operated.

Appendix A is a listing of ARMVAL job positions, and Appendix B contains the ARMVAL (US and Threat) questionnaires used by the research team.

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Chapter 1

DIALOGUE FROM FIELD EXERCISE "RED THRUST"

INTRODUCTION

The discussions with the 194th Armor Brigade personnel took place two years after the field exercise has been conducted. Only a small remnant of the original participants were still with the Brigade. This information provided guidelines for the subsequent interviews at ARMVAL. For the most part, the experiences learned from RED THRUST were quite similar to those learned from ARMVAL, even though the scenarios and objectives were very dissimilar.

The training exercise (RED THRUST) was developed to try and use the OPFOR training technique developed by FORSCOM's Opposing Force Training Detachment, Red Thrust, located at Fort Hood, Texas. This training technique appeared to provide a good opportunity to get some exciting and different type of training for the troops. During the planning and execution of RED THRUST, the 194th had a change of command, but both commanders wholeheartedly supported this new and unique type of training.

The objective of the training exercise was to dramatically impress upon the individual crewmembers what they would face on the modern battlefield. From the dialogue it can be seen that the individual crewman had learned to associate with the OPFOR five distinct experiences that apply to Soviet tactics in general: (1) fast offensive action, (2) large number of vehicles, (3) extensive electronic warfare activities, (4) heavy employment of smoke, and (5) the use of nuclear biological, and chemical (NBC) warfare. Other comments may be generalizable to the factors which governed the field exercise, such as location, tactical situation, etc.

RED THRUST BACKGROUND OF THE OPFOR UNIT

The commander of D Troop, 10th Cavalry, 194th Armor Brigade, was asked by the Brigade S3 to develop a field exercise using the new training technique (OPFOR) developed by Red Thrust. Red Thrust furnished a complete packet of training material to the brigade and a representative visited the 194th.

Due to time and training constraints, the D Troop commander condensed the material into a two-week training program. The Troop trained from 10 to 16 hours per day. The troops quickly grasped the training and took to it "like ducks to water." The excitement the training produced was visible to all concerned. The second week of the training program had to be cancelled as the Troop was asked to participate as Aggressors using OPFOR tactics in a battalion ARTEP at Camp Pickett, Virginia. This provided an excellent opportunity for the Troop to practice as they now had the room at Camp Pickett to maneuver in unit combat formations. D Troop Foe, an infantry battalion, was completely overwhelmed by the OPFOR tactics since they had essentially underestimated the speed of movement of the OPFOR. (The same infantry battalion in a later time period again faced the OPFOR unit. The changes in the battalion's responses, for the

better, were so dramatic, compared to their first time experience, that it was clear they had learned their lesson well.)

When the RED THRUST exercise began, the friendly platoons were given an oral operations order to move forward and take up a defensive position at a predetermined location within a bottleneck formed by a valley and high mountain ranges on either side. Distance across the valley was 3000 meters; the maximum range where the OPFOR could first be seen by their dust cloud was nine kilometers. Battle positions were located around the rocks and hills on the desert floor. Alternate and supplementary positions were placed to the rear with fields of fire ranging from 1500 to 2000 meters. A reconnaissance of the area was allowed on the day prior to the exercise. The exercise was planned so that the OPFOR had to move through the valley due to the rugged terrain on either side.

Mission artillery simulation was accomplished by wiring together 7-10 individual charges of C4. Charges were placed all around the fighting positions. It took about one hour for engineer support to set the charges. Small charges were even attached to the tank hulls to simulate direct hits. The effect of this artillery simulation was so realistic that some of the crew abandoned their tanks after sustaining a simulated artillery hit. Comments from combat veterans substantiated the realism of the artillery barrages. Expressions of disbelief on the faces of the participants were reported to be common.

During the barrages, the OPFOR unit could be seen maneuvering toward the US force on two different attack axes. They then formed into a line formation moving at 20-25 kilometers per hour. Signal flags had been planted in the ground at different ranges to guide the exercise controllers in setting off the demolitions. Smoke and CS gas were mixed with the artillery. For safety reasons, the exercise was halted before the two forces could intermingle. Each platoon run-through lasted approximately one-and-one-half hours. No platoon repeated the exercise.

The entire OPFOR unit operated on the command net. No one was authorized to speak on that net but the OPFOR controller. When the OPFOR leaders moved, the rest followed. Arm-and-hand and flag signals were also employed. This combination of arm-and-hand and radio worked very well. However, given the limited experience with speed and vehicle closeness of the US Force playing OPFOR, had they been jammed, chaos would probably have ensued. On the other side of the playing field, the 517 MI unit did jam the radio communications of the US Force.

Artillery and engineer support was provided to the US Force. An artillery battery provided the support along with forward observers. The battery simulated actual engagement from the data provided. They had some difficulty in trying to engage moving targets, especially at the speeds the OPFOR operated. Two bulldozers and two bucketloaders were at the disposal of the US Force. Great pains were taken by the engineers to cover up with dirt the fighting positions they had dug for each preceding platoon. This action forced each platoon to perform a terrain analysis and to choose what they considered to be the best locations for their positions.

**Experiences Concerning the Desert Environment
and Terrain at Fort Irwin, California**

Range finders did not work due to the "heat shimmer."

Lay of the sight reticle on target was more critical due to the small size of the target in the optics.

Heat rising from the desert floor caused the target(s) to be viewed like a shimmering mirage. This caused the target to appear to be in a location other than the one the vehicle actually occupied at that time and place.

Could not fire from the desert floor due to the scintillation caused by the heat. Had to occupy positions on highest ground available in order to get above the conditions which caused heat shimmer. (NOTE: a live-fire exercise was provided during the period the troops were at Fort Irwin; the OPFOR (RED THRUST) exercise was one of a series of exercises in which the Brigade participated.)

Estimating range was very deceptive. During the live-fire exercise, rounds would fall well short of the target.

Our current camouflage nets were worthless in the desert. They were green and reflected the sunlight.

The OPFOR located the individual vehicle positions from great distances due to the shadows that they cast. They also saw the radio antennas from great distances. (The US Forces started to tie down or remove their antennas to keep them from being used as detection cues for the OPFOR.)

Reflections from glass surfaces also gave away positions. Just the slightest bit of reflection on the desert gave away positions.

When preparing fighting positions, do not bank up dirt only in front of the vehicles. The sides of the position should also be banked up, since the slightest angular difference in the OPFOR approach in relationship to the direction the vehicle was pointed allowed the OPFOR to easily see the drive sprockets and exposed side of the vehicle.

It was best to dig the vehicles in deep enough so that they cast no shadows.

**Some US Forces' Reactions and Recommendations
During RED THRUST**

Platoon leaders spent an excessive amount of time in trying to prepare an operations order. Became too engrossed with the format for the operations order.

Platoons spent too much time in prior planning, not enough time preparing the defensive position.

Maneuvering in the desert was completely new to the troops. Vehicles tended to stay closer together as they maneuvered (50-100 meters apart).

Ranging on target at extended ranges while moving at fast speeds was difficult. [One individual commented that he "never did range on a target, used battlesight even at 5000 meters by placing the crosshair over the top of the turret and firing." Range to target was verified using map reference points. Gunners tried to use precision firing techniques at the longer ranges.]

Many of the tanks opened fire much too soon. Knowing just when to fire at ranges of 3000, 4000, or 5000 meters is something US soldiers have not been trained to do. Seasoned troops waited until the OPFOR had moved closer so as to make their shots count.

Gunners had some problems when operating in an NBC environment. The main problem was compatibility of gas masks and the optics.

If the tank crew operated buttoned up, they had difficulty in locating and laying on the target. [One of the participants commented that he had been in the Army 13 years and had never fired a tank while wearing a gas mask.]

Problems of operating in smoke were horrendous when compounded with the artillery fire and dust. (Gunners had problems acquiring targets in the smoke screen.)

If the tank crew fired repeatedly from one position, it became a casualty.

When the massive artillery fire gave away their positions, several platoons panicked and prematurely moved out when the OPFOR was still at ranges in excess of 3000 meters.

Driving habits had to be changed while operating in a desert environment. A number of the vehicles suffered track and torsion bar breakdowns due to driving at too high a speed across ditches and rocks. Torsion bars were replaced on the spot and the drivers became much more careful.

The US Forces never realized how fast 15-20 kilometers per hour really was.

It was recommended that when the OPFOR closed to 1500 meters of the battle position, the US platoons should have started at their delay movement.

Radio communications presented a major problem in the desert (even without jamming). Radio wave propagation was a problem, and the radios had to be packed with ice to cool them.

Troops did not know what to do when their communications were jammed or when they were out of sight of their commanders.

Commanders did not plan far enough in advance, so they seemed hesitant about where to go next after leaving a position. They would begin to move, then hesitate, and seem to be confused due to the speed with which the OPFOR was closing.

US Forces tried to use smoke grenades to create a diversion that would gain the OPFOR's attention. When the OPFOR started to move toward the smoke, US Forces would then shift their tank firing positions.

US Force Mechanized Infantry Comments

Trying to extricate dismounted infantry with the OPFOR moving so rapidly became a problem. If the infantry waited until they could acquire the OPFOR vehicles, the engagement range would be so close that they could not fire and still extricate themselves safely.

In this type of tactical scenario, the infantry took on the role of a security force for the armor. Armor leaders used the infantry mainly for close-in support.

When the OPFOR attack started, the APCs were first moved to the reverse side of the hill and then subsequently to defensive positions further in the rear areas. US Forces started to move back when the OPFOR reached 1000 meters, which was fairly close. The Dragons and LAWs were the last to move out.

Jamming did not cause loss of command and control with the infantry. They were accustomed to operating with arm and hand signals.

During the after action critique, it was recommended that the infantry wait a little longer before pulling back.

If the infantry tries to remain until the OPFOR reaches 1000 meters or less, they must be able to stop the first wave of attackers in a situation such as the RED THRUST exercise.

Comments From OPFOR Personnel

Even before the OPFOR reached 3000 meters, they could locate exactly each tank in the US Forces. They knew when the US Forces were going and where each of their vehicles was located.

OPFOR were coming too fast for the US Forces to shift firing positions. The OPFOR caught a lot of them moving between their first and second positions.

OPFOR had the situation in their favor because they were moving fast inside their smoke screen. There was nothing the US Forces could do.

If the OPFOR could have hit the objective at full speed, they would have been able to run them down. OPFOR had to slow down for safety reasons.

COMMENTS CONCERNING THE TROOPS' BEHAVIOR AND ATTITUDES DURING AND AFTER RED THRUST

During the Exercise (US Forces)

The realism of the exercise left an indelible impression on their memories.

Speed at which the OPFOR maneuvered was vastly underestimated.

Initial reaction to the OPFOR was one of absolute shock. They misjudged space, time, and distance. The violence of the artillery simulated stunned them into inactivity. [Comments from two officers who came to observe the exercise were typical of those received: "It was a unique exercise, very violent and very quick." They went on to say that they "wouldn't have known what they would have done if they had been down there." These comments came from a colonel and a general officer.]

One of the major weaknesses of the US Forces is that they had never seen "Threat" tactics before, and when they saw that many vehicles approaching at fast speeds, they did not know what to do.

Inexperienced troops tended to start shooting at too great a range. There was a marked difference in the reactions of troops who had experienced combat in Vietnam and those who had to previous combat experience.

In almost all cases the platoons had remained in position too long and were overrun. In some cases individual tanks did not ever return fire.

Fire commands had to be shortened. The standard fire command was too long and there were too many targets.

Gunners selected their own targets as the targets were coming too fast for the commander to use the override. They only had to move the gun tube a couple of feet to acquire another target. If the gunner needed range-to-target, the commander would index or announce the range.

The US Forces did not employ the engineer assistance to its fullest extent.

US Forces did not know how to revert to other types of signals once the OPFOR jammed their radio communications. US Forces relied too much on the radio. The platoon leaders realized they could not depend on their radios for command and control.

Many of the troops tried to withstand the CS gas in order to get a shot at the OPFOR and to avoid putting on their gas masks.

During the Exercise (OPFOR)

The troops could not believe that someone would maneuver like the "Threat" does. They thought it was "fun and easy" to learn the combat formations. They could see the weaknesses in using such formations. [One quote was typical of the responses from the OPFOR. "I've learned a lot about my own maneuver capabilities and value as a leader by portraying a Threat person. I see that what we, US, do is better and it's given me a reason to do better than what I've been doing. After learning this, we know exactly what the US can do."]

If the Troop [Troop D] 10th Cavalry, had gone up against someone else that was using OPFOR tactics, I feel they would have been able to handle this type of situation.

Maneuvering into a proper line formation took four to five repetitions to learn.

Being trained as the OPFOR places the US soldier in a unique position of seeing the weaknesses of the US Forces. He would then realize what he would look like, if he was fighting the OPFOR.

General Comments After the Exercise

Best learning experience I have ever had in my eight years in the Army.

I don't think that any of us are getting the training that it takes to show us what we are going to be up against.

I'm more sure of myself, but you can't do this once every couple of years. The concept has to be instilled and trained into you constantly. Experiences like this should be a part of our normal training.

The infantry troops liked the exercise but thought it primarily benefited the armor personnel.

The enlisted men viewed these types of field exercises as benefiting only the officers. They see little direct benefit to them.

Felt that field exercises for the infantry was a waste of time. You don't learn anything by sitting around.

The troops would like to participate in exercises where the complete combined arms teams are available so they can see how the integrated system is supposed to work. Too many of our field exercises play only the role of the major participating unit. They never get a chance to work out the coordination required of a combined arms team.

During the after action critique, almost every platoon leader said that a system for operating during jamming needs to be developed. We need to know when to initiate or accomplish certain actions. Control measures need to be devised.

Sometimes artillery support was never called in. [In one person's opinion "the artillery could not have pumped in enough rounds to stop that kind of movement, due to the large area in would have to cover."]

One reason for not utilizing the engineer support to its fullest extent may have been attributed to the lack of training on how to use and employ combat engineers. We just do not think about their use.

In subsequent ARTEPS, it was clearly seen that the troops had benefited from their experience in RED THRUST. They started to employ barrier systems to stop the momentum of the attack. They used more obstacles, constructed tank ditches, laid traps, and used cratering in the roads. They also started to move when the OPFOR started to move. They tried to channel the OPFOR into a choke point as a tactic.

COMMENTS REGARDING TRAINING IMPLICATIONS

Information that is taught concerning the Threat should have a practical value. US troops should have a more reasonable expectation of what the Threat is going to do in a given situation. Information is needed on their ability to mass, their command and control, their weaknesses.

If US Forces had more training in this type of scenario, they would not have as much difficulty in coping with it.

Learn to think, develop plans and organize. Ask the right questions of the next highest command. When you understand what you are up against, their capabilities and shortcomings, then you can begin to organize the terrain.

Need more emphasis on camouflage techniques, especially in the desert.

There is a need to learn battle drill. Crews need to operate more by using SOPs, less reliance on radio communications.

US Forces must be able to move fast with decisiveness by utilizing rapid dashes from position to position.

Training to operate while wearing NBC protective mask and clothing is essential.

Troops need to know how the Threat employs smoke and what massed artillery can do.

Learn how to use the infantry and engineer support. The mechanized infantry in the desert area was of little help. Their weapons, except the TOW, were close-range weapons. It was difficult to extricate them if they remained in position too long. Need more training on the utilization of natural and manmade obstacles to stop tanks.

More extensive training in terrain analysis is needed, and also in how to establish a good defensive position. Need to be thoroughly trained in how to set up a defensive position using a combined arms team. We must be able to start organizing the terrain immediately. We must be quicker than we have ever been.

Classes in selecting and preparing fighting positions need to be conducted. Positions need to be deeper with covered and concealed access.

Tank crews and other supporting weapons crews need training in shooting at targets which are moving in and out of smoke.

COMMENTS REGARDING TRAINING INTEGRATION (US/OPFOR)

SQTs and ARTEPs could be tied together with OPFOR so that the experience the soldier gets in training would be integrated with the OPFOR experience into a whole training concept. All training, whether it be SQT, ARTEP, or FTX, should be reviewed by the soldier as a cohesive training plan, whereby all the parts are joined toward a common goal. When the National Training Center begins full operation in 1982, it should have the effect of increasing OPFOR utilization in home station training; thus bringing more focus to training.

Commanders are reluctant to use a realistic force (as OPFOR) in ARTEPS. They feel it creates confusion and loss of control. Commanders should be aware that using the OPFOR is a learning experience. (Using OPFOR as a means for formally testing a commander or his unit defeats its use as a training technique, which was the original intent of the OPFOR concept.)

CONCLUSIONS THAT RESULTED FROM RED THRUST

The troops have got to see what other supportive assistance is available and how it can work for them. They should believe that, with the TOWs, close air support, artillery, and other fire support, we can stop that first, second and even third wave. We teach the troops to disengage and we may not want them to do so at the breakthrough point.

[Another comment shows a little different approach to the previous comment:
"We can't match the OPFOR mass so we've got to let them keep coming so

they can expend their ammunition and fuel. We can inflict casualties over a longer distance rather than make a stand and have our troops overrun."]

We need to conduct some field studies to determine how many OPFOR vehicles can be knocked out using the stay-and-fight technique as compared to the delay technique. Precious time is lost in backing and turning vehicles from their fighting positions. You do not have time to move into secondary defensive positions with the OPFOR attacking at those speeds. If you shoot at 1500 meters, they have now moved to 1200 meters, and it is very difficult to extricate at those ranges without a lot of artillery or close-air support. Backing the tanks into positions saves a lot of time. When backing the tank into position, the position has to be carefully prepared or you cannot get the maximum elevation that the main gun is capable of. Bringing the vehicles into position "nose first" wastes too much time.

The problem with OPFOR is that it is viewed as an add-on. It is, in fact, a training technique, and therefore, a function of the S3 staff. It is not an S2 function. It is viewed as nice-to-know, but not as basic information upon which we determine what we need to know and do. It is viewed as something apart from US training, when it really is an integral part of our training. The reason for the success or failure of OPFOR lies in the command emphasis it receives.

There needs to be a lower dissemination of information on how the Threat fights. Personnel responsible for Threat training always give the Threat capabilities and end the class or briefing on that note. They rarely explain what we have and what we can do. What we need is a balanced delivery of Threat and US capabilities. We need to hear, "here is a situation you can meet and here is how we do it." We usually get, "here is what they have and here is how they are going to throw it at us, and there is nothing you can do about it."

We need to practice like a football team and stop thinking that we are so flexible that we can perform any task without practicing what we would do in those situations.

We need more emphasis on battle drill that includes less reliance on radio communications. When we are jammed, our commanders should try to operate through it. Some of our units did integrate battle drills into their training.

We must have a better prepared overall defensive system to stop that amount of mass.

Commanders express a reluctance to use OPFOR in training due to perceived complexities and because they are afraid to try something new. Based on our experience, we found it is not complex, it is easy and can be tailored to the training situation. It is not easy to commit yourself to OPFOR with all the other training and support requirements.

The repetition during field maneuvers for enlisted personnel causes them to feel that they are not benefiting from the training. They feel that it is mostly for the benefit of the officers.

Firing at extended ranges against moving targets is becoming more critical. There is little instruction in shooting at long ranges. We must start engaging at 3000 plus meter ranges with HEP; waiting until they reach 2000 meters is too late. Need to develop techniques for firing into smoke screens. Once the platoon leader gave the fire commands, the crews did not realize how fast the OPFOR could close with them.

If you fire more than twice from any one location, you are inviting holocaust on your position. The point of optimum target range is 1500 meters. Due to the OPFOR's operational speeds, you have a limited amount of time to shoot at two different targets before starting to move back to another defensive position. With the OPFOR using mass fire, you cannot afford the luxury of staying in your firing positions very long.

[Individuals who participated in the OPFOR unit cited the inaccuracy of firing on the move as a major weakness of an OPFOR. The OPFOR's major advantage was their large mass. They felt that the US Forces had to use tactics to counter this mass while the OPFOR utilized only the tactics of the "charge." The large amount of OPFOR artillery was also cited as one of their major advantages. Some individuals felt that we cannot win outnumbered. One respondent stated, "you can't take one tank and shoot 50 of their vehicles."]

Engineer support is probably the most single important element. In mobility and counter-mobility situations the support the engineers provide is essential and we should get used to using them.

The use of CS gas mixed with the smoke seriously degraded the ability to deliver effective fire by as much as 60-70% in tactical scenarios. There is an interface problem between the gas mask and fire control instruments. When you mix gas with the heat, dust, perspiration, and discomfort inside the tank, it starts to affect performance.

OPFOR tactics were easy to learn.

As a result of the OPFOR experience, both forces experienced a shift in their attitudes and motivation toward OPFOR training.

Underestimating the power of the OPFOR was the major fault of almost every platoon. The troops were amazed at how little time it took the OPFOR to close with them.

Chapter 2

DIALOGUE WITH ARMVAL PERSONNEL

INTRODUCTION

The face-to-face interviews with the US Force and OPFOR commanders took approximately one hour. Crew and section players were interviewed in small groups. These interviews gave everyone a chance to expand on any topic presented in the written questionnaire, as well as any subject they deemed essential to the research project. The first interview presented below is that of the US Force commander.

US FORCE COMMANDER INTERVIEW

Regular Marine Training Compared to ARMVAL Training

The US Force commander was asked to highlight the differences in training for ARMVAL as compared to their regular Marine training. Here are some of the comments he made:

Originally the Dragons were employed on a narrow frontage, which provided them only with frontal shots. They were moved to the flanks to get better shots at the OPFOR vehicles.

The manner in which the OPFOR operated had little impact on our jobs, except for the LCVs. Since they were a new system, their job changed as they gained experience. They had to become familiar with the ability of their system to move rapidly on the battlefield.

Everyone had to rethink how much time was available to perform tasks due to the fast closing speeds of the LCV and OPFOR. Our training (US) did not prepare us for the fast closing speeds.

To conserve ammunition, target firing positions were stressed so that vehicles did not fire at the same vehicles. TOWs were assigned to engage tanks and Dragons to fire at BMPs.

Each unit had engagement SOPs so each vehicle would know what targets to engage. This was emphasized by most of our instructors.

Subtle changes had to be made based on what the OPFOR actions were.

Effective OPFOR Tactics

The OPFOR learned to position a fast shooter, such as a tank, on high ground where it could engage at long ranges. This was especially effective against the US Force.

When the OPFOR had positions which were lower and had good fields of fire covering their defensive positions, the US Force was able to get close by using the terrain to hide their movements.

The US Force could limit the usable range of a particular weapons system by staying hidden as much as possible.

The OPFOR was able to get kills out to 2800 meters using higher weapon positions. To counter this, the US Force used the extended range of the TOWs to engage these types of employment. The TOWs were positioned and trained to pick up only long range signatures and to warn our vehicles to stay out of those types of possible kill zones.

There is not enough appreciation of the speed at which the OPFOR can close. When they are coming at you with ratios of 5:1 and 10:1, and you have less than a minute to acquire and fire while they are shooting back, it is difficult to stop them. The OPFOR here has the ability to go right through an infantry battalion equipped and supported only with their organic weapons.

OPFOR Weaknesses

One of the main weaknesses exhibited by OPFOR was their inability on defense to counter rapid US maneuvers.

Once the OPFOR assumed a singular defensive position, it was not able to respond quickly. We could get within 400 to 500 meters of the defensive position without exposing a vehicle. It took a considerable amount of time and caution on the part of the base of fire and maneuver force commander to do this.

OPFOR Training Program Inclusions

The US Force commander had just recently completed the US Army Armor School Advanced Course at Fort Knox, Kentucky, and felt that the training he had received concerning the latest in Threat doctrine and employment of TOWs had benefited him greatly. He felt that it would have been more difficult if he had not had the training. Two things stand out and should be incorporated into our training system:

Emphasis should be placed on teaching the real range and lethality of Threat weapons systems. Even though their doctrine says they will not engage at specified ranges with certain systems, I feel that these restrictions will break down in actual tactical situations. The Threat will rapidly learn that they are degrading their weapons systems' ability by not using them to their fullest capabilities.

The use of a combat outpost commander was introduced during the US defensive missions and worked very well. The commander's duties encompassed control over the US Forces forward of the defensive position. Having these forces under the control of a person who is out there and can observe

what is going on worked well. The commander could see what was being engaged, how fast the OPFOR was closing, and knew the terrain over which the US Force had to fall back. It reduced reaction time and added command and control. This is an example of some of the subtle changes we made, based on our experience at fighting the OPFOR.

Impact of OPFOR on Job/Mission

Acting in the role of a combat outpost commander did cause some differences in my job. I had more and different things to think about and do. It entailed much more detailed planning. I needed more time to get my people out on the ground they were to defend. If this is not done, you are lost. You have to plan your fields of fire from the map and then go out on the ground to look at it from all angles. Doing this results in setting up good killing zones that cover likely avenues of OPFOR approach.

More recent employment of mines and obstacles would relieve the defender of anxiety. Areas that could be defended by maneuver could be established and would not require actual coverage by a weapons system.

One of the major things to learn as a company commander is to understand Threat weapons systems capabilities and limitations for a given piece of terrain. I can now look at a piece of terrain and say "No. I can't do that or I can do that, because Threat systems can or cannot do the following for that particular terrain or range distance." I gained an appreciation of weapons systems by actually fighting them and seeing what reach they had.

As a company commander, I do not feel I would have to make any major changes in my job. A company commander must have a knowledge of the Threat's capabilities and vulnerabilities. Our vulnerabilities should be learned also. These are largely ignored in our training.

Translating what is in the manuals to the actual situation is difficult. Trying to explain the concept of overwatch to vehicle commanders and applying it to the ground they are operating over takes very precise explanations. Even after two-and-a-half months into the experiment [ARMVAL] I am still coaching on how to occupy a TOW position.

Troop proficiency must be proven under field conditions. They may pass their ARTEPs and SQTs, but until we get them out in the field and someone places a laser on them, only then will you know if they can perform correctly.

During the movement to contact during the Attack Mission, I, as a company commander, had to expedite to get the maneuver force to move and maneuver with greater speed to help the unit that made initial contact with the OPFOR. If the contact unit did not have good terrain to occupy, their life expectancy was rather short, if the maneuver force could not get around in time.

Even though we may not be running the same mission replications, the basic jobs in the US Force do not change. The US Force became confident of what

their systems could do, they became familiar with the terrain and knew what they could get away with. Once these things happened, they started to push themselves toward their limits.

Through my personal experience here, I have gained the confidence to employ a lot of things. I learned that I must be more specific in trying to pass on information to my people. I learned that it requires a lot of training to establish good command and control over a company.

This experience [ARMVAL] has pointed out the fact that if all elements are not following the same plan given them at the battalion/brigade levels, they are going to have real coordination problems.

Simulation Techniques versus Field Training

The US Force commander was asked how simulation could be used for this type of training. Some of the comments were:

You could gain a perception of how to conduct an attack against a defense, but could not gain an appreciation of how severely depleted a base of fire can become due to failure to execute a maneuver on the actual terrain. We practiced at Camp Pendleton on how to set up a base of fire. Everyone critiqued us as doing it right. When we tried it the first time at ARMVAL, the base of fire got wiped out.

Training Implications

To operate as a unit against an OPFOR requires eight weeks of intensive training.

A miss/hit system such as MILES is required to conduct training.

Learning basic procedures and battle drill should be the first priority. The OPFOR need not be present for this stage of the training. Battle drill will take two to three weeks to learn. The following five weeks would consist of maneuvering against the OPFOR.

The OPFOR adhered to their doctrine but learned the range limitations of US weapons. They started their maneuvers outside the limits of US weapons. Their actions were tactically sound and worked under the test situation. If we were to set up in a true linear defense, the sectors to our left and right would be engaging the OPFOR as they maneuvered.

The speed of the OPFOR caused us to change the way we operated in the defense. After the first three repetitions, the OPFOR began to anticipate the US actions and began to increase their speed as far out of range as possible. Their closing speed became so fast that we could not fall back fast enough and did not have time to get set.

They [OPFOR] echeloned their forces so that the forces farthest away from us were moving to close with our main defensive positions. If we tried to maneuver, we ran into our own force. If I saw OPFOR that fast on a flank again, I would have to abandon plans to occupy intermediate positions and go directly back to the FEBA.

The large OPFOR/US ratio affected us when they got close. If they kept up their speed, we could not service that many targets. You have to be able to neutralize them and fall back, or, if you can channel them into a given area and control their flow, they may be stopped.

To gain sufficient experience to retain a calm and collected composure during an OPFOR assault requires four to five repetitions.

Training Program Development (US)

The US Force commander was asked how he would organize a training program for a US Force if he had only five training trials in which to do it. Here is his reply:

On the first trial I would have our combat outpost force set up their defensive positions, just as they are taught to do. I would then have the OPFOR mount a strong attack, keeping enough pressure to force the US Force to fall back and become disorganized. I would then conduct a critique and ask them what mistakes they thought they had made, adding my own observations. Then I would run the exercise for the second time. Again critique and run the third exercise. After the third time I would critique their selection of positions and go out in the field and emplace each vehicle. After conducting a detailed analysis of the mission, I would run the defensive mission again. I would then move into the attack mission against an OPFOR strongpoint.

Detailed analysis of each battle position is required, which must include weapon capabilities and limitations. This type of analysis must be accomplished whether it is a defensive or offensive mission. Intervisibility studies must also be conducted. What looks good, cosmetically, may not hold up during the actual engagement.

Electronic warfare and NBC should be gradually phased into the training. If we have a total EW environment, we have lost our flexibility. We have to build up the confidence in our force so that they can eventually handle these additional factors. Competency in the basics should be emphasized at the beginning.

Potential of Confusing Troops Training in OPFOR Tactics

There has been some concern that training in OPFOR confuses or harms individuals when they go back to US training. Here are some responses on that subject:

The OPFOR players wish they could get on the US side. They feel the US players are learning more than they are.

OPFOR players feel that OPFOR training is relatively easy to master. The aggressiveness being instilled in the OPFOR players may create problems when they return to their regular units.

Commanding a unit trained to operate as the OPFOR would be a challenging experience. It would give an appreciation of the speed and vitality with which the OPFOR can close, if you cannot do anything to stop them.

Commander Reluctance to Employ OPFOR in Training

Smith¹ points out two primary problems in interfacing the OPFOR program with the ARTEP. The first problem was how to effectively incorporate the OPFOR with ARTEP, and the second was to combat the firm belief in the military mind that the ARTEP is not a test of the battalion and its commander. Many commanders felt that if they suffered a defeat by the Threat, it would be reflected in a poor score on the Officer Evaluation Report (OER). Here is the US Force commander's thoughts on this subject:

Some commanders would be reluctant to undergo the OPFOR experience, but I also think there are some who would say "I want to find out now before I have to do it when the real thing is happening." It is best to make mistakes when it does not count, than when the shooting starts. Units which have trained a lot and emphasized field training will do well if they encounter the OPFOR experience.

OPFOR COMMANDER INTERVIEW

OPFOR Training Compared to Regular Marine Training

The OPFOR commander was asked to point out some of the differences in training between OPFOR and the US. His first reply was to say that the "OPFOR training was a whole new exciting aspect for all of us. The training we received was very detailed, concise and followed a logical pattern."

The training started with the Soviet mind set, then moved into basic tactics, and then progressed to the actual combat formations. Next was the application of formations in a field environment.

¹N. D. Smith. State of the art: OPFOR and ARTEP implementation in the US Army (Research Problem Review 78-25). Alexandria, Virginia: US Army Research Institute for the Behavioral and Social Sciences, May 1979.

We were allotted a block of time and given certain goals to accomplish by certain dates. This part of the training was outstanding because we were one force devoted to performing and executing a certain mission.

We kept reinforcing the idea that there were no individuals, everything was executed according to the commander's plan. He dictated it, and that was the way it was to be executed. Under those circumstances, you lose individuality and react only to a given set of rules.

The OPFOR tank commander's job is different from US tank commander's. From what I've seen, the OPFOR worries more about executing the formations and platoon fire commands, rather than the individuality of the tank commander.

US Forces are oriented, to a certain degree, toward individual crew training rather than collective training. Each section is capable of engaging on its own cognizance and is not rigidly controlled like the OPFOR.

The first thing we stressed was the mind set, then the tactics and formations. We drew the formations on a board and then walked them over the ground until they could react naturally.

Effectiveness of Threat (Soviet) Tactics

The Threat's most effective tactic is their shock effect. The shock effect alone would be enough to make anyone wonder if they are able to hold their positions. The terrain dictates, to a large extent, the speed, and therefore the shock effect. At times, it has cost us in heavy losses, but I understand the Threat is prepared to take those losses.

During the Meeting Engagement mission, we found that after about 10 minutes into the battle, the US Force was not able to hold back the large Threat ratio.

I believe our portrayal as an OPFOR of Soviet tactics is accurate. Our speed in moving across open terrain and movement in the attack is well within the limits. What I see as Threat doctrine is go! go! go! roll! roll! roll!

The key to the OPFOR defense was their familiarity with the terrain here at Hunter-Liggett. The outcome might be vastly different on new terrain.

Effectiveness of US Force

The biggest thing the US Force has to do is realize what their disengagement ranges are. Because of the OPFOR speed, they have to be able to shoot and get out, not try to kill the whole OPFOR.

The second most important thing is their flank shots. They are quite successful at flank shots and at utilizing the terrain. They do tend to stick

around too much. They are also quite successful at utilizing the maximum effective range of other weapons, especially the TOW.

The US Force improved dramatically against the OPFOR defense. We were very successful, but the US Force got smarter. They started using their weapons systems at standoff ranges that were available to them, and they stopped exposing themselves.

The US Force needed approximately 10 to 15 trial runs to start being effective against the OPFOR. When we were in the defense, only 5 to 8 runs were needed before they got their moves down to a science.

OPFOR Weaknesses

The size of their [the Soviet Army] formations and the number of vehicles in the type of formations they go into is a weakness. They must train 24 hours a day. If they use battle drill, I can understand how they execute their formations. It's very cumbersome. I don't understand how they would expect their platoon columns to go into two separate forces to make a deliberate attack when they are not exactly sure of what terrain is ahead of them.

Our attacks[OPFOR] at the very beginning were shaky. The formations were executed, but the problem was shooting on the move and fire commands. We could always overrun the US Force, but we could never hit or kill them. After much discussion with my platoon leaders and their personnel, we started shooting on the move, looking, searching, gun tube orientation, and we started hitting.

OPFOR Training

OPFOR training has broadened my knowledge of tactics (both US and Soviet). If we had to fight, it would help me plan what I would want to do. I have a better understanding of what they could do to me.

I would retain "walk through" exercises, as well as blackboard drill. The utilization of weapons systems should also be added. Assistance is needed to help the company commander and platoon leaders teach fire commands. We need a preplay area approximately five miles wide and ten miles long where we can practice combat formations day-in and day-out.

It was not difficult to learn Threat tactics. The biggest problem for the troops was in accepting the fact that the Threat would do things the way they had been trained. They don't think the Threat will do things that way. Obtaining command and control of the OPFOR formations was one of the most difficult tasks to learn. It was difficult to get everyone in their proper position. The dust kicked up by the combat formations created horrendous problems.

From the standpoint of a Marine, I think that it is very important that Threat training be conducted as an integral part of the overall training along with the

US training. You can't defeat your enemy unless you know your enemy. I stress integrated training.

I don't believe that it would confuse our troops if they took Threat training. I think they can draw a distinct conclusion of the differences. I would not even worry about that; that's not a valid argument. I think that may be an escapist way of saying, "I don't want to conduct it."

In order to keep up the motivation and morale of the OPFOR group, some type of collateral training should be interdicted. Organizing two OPFOR groups may be another approach, one group would be in the field while the other underwent some type of training.

The personnel in the OPFOR group here always wants to learn more about what the Threat has.

The OPFOR maneuver training must be learned on the actual terrain; simulating it with a terrain board just won't do. The commander does not have an appreciation of what is out there until he actually sees it.

An OPFOR unit can perform the basics with a week-and-a-half of training time.

CREWMEMBER INTERVIEWS: US FORCE

US Reaction to OPFOR Maneuver Speeds

The OPFOR maneuver speed is probably the factor which impacts the most on the US Force. It affects behaviors at all levels more than any other factor. A variety of things results as a consequence of speed.

We were not expecting them to come at us as fast. Our reaction times from the first contact had to be faster.

More targets had to be acquired within a shorter amount of time.

There was less time to fire before displacing.

Displacement from position to position had to be accomplished quicker.

Our retrograde speeds were not fast enough to gain standoff range. As we moved, the OPFOR kept right on top of us. Our retrograde speeds must be faster than their attack speeds.

Sectors of fire must be designated so each weapon will know what targets to shoot.

The speed and mass frightens you. One of your first thoughts is "which one do we shoot first."

Acquiring, tracking, and firing at targets are relatively unaffected by OPFOR speed, but all must be accomplished quicker and more accurately.

We started to engage OPFOR at longer ranges (2500 meters) because of the speed with which they moved. We started to displace when they closed to 1000 meters.

We were only able to fire three to four rounds before displacing.

After the initial shock, we naturally sped up our reactions. Once we had been through this experience a few times, it did not bother us as much.

We did not have the time to range on fast moving targets. The rangefinder was too slow, so we used battlesight.

Weapons which had a short engagement range (Dragon) had a lot of difficulty in trying to displace against an OPFOR attack. The Dragon could sidestep the OPFOR, but could not get back to a secondary defensive position. The Dragon can hide from OPFOR due to its small size.

More extensive use of mines and obstacles is required to counter OPFOR speeds.

US Reaction to OPFOR Mass

The second major factor that affects performance is the large OPFOR mass. With experience, its effects can be minimized somewhat. The crews expressed these opinions:

It was difficult to engage the large number of OPFOR vehicles with the limited number we had. Their speed and numbers made it difficult to get many shots at them.

We tried to engage them as far out as possible to diminish their numbers and force them to deploy.

Engaging the OPFOR while we were moving was difficult; it was not too hard otherwise.

Disengagement speeds with the M60s were too slow. The faster Abrams M1 (XM1) speeds may help with this problem.

As long as each weapons system picked up the targets within their sectors of fire, everything seemed to work fine. Tanks were assigned primary, secondary and alternate targets within each sector. TOWs and other weapons also had target assignments.

US Countermeasures to OPFOR

Lead vehicles were engaged first in order to take out their leaders.

Within tank platoons, a random firing sequence was used. Each tank rotated its firing turn.

Hit-and-run tactics were used at extended distances in front of the initial defensive positions. Dragon teams were used in ambush positions to engage Threat from the rear.

We did not evolve different countermeasures but we had to stress what we had already learned.

We had to engage more from the flank as frontal shots did not produce many kills on OPFOR tanks.

During displacement to the rear, we had to fire on the move. If we did not, we could not get sufficient standoff room.

Learned not to stay in one position for any length of time.

Initially, we sustained a lot of kills. We learned to find better ways to use the terrain. For example, we found better positions, stayed off of the skyline, looked for better cover/concealment. If we did not find good positions, we kept looking.

We started to use our communications more efficiently. We used code words for different battle drills.

Training Comments (In General)

We need more realism like we have seen at ARMVAL.

We are still learning even after five months at ARMVAL.

This type of training should be incorporated into our regular training. If we had to go into combat, we would be better trained than those Marines who had not experienced this type of training.

[AMTRAC personnel obtained the least benefit by the OPFOR exposure. They were used to carry the Dragon teams and the training did not basically affect their job. (More dissatisfaction was expressed by the AMTRAC personnel than any other group. They felt they were being misemployed. They felt that they could contribute to the fight and were not allowed to fully use their capabilities.) (All expressed a strong desire that this type of training be made available to other Marine units. They hoped that they would form the core cadre of a Marine OPFOR unit to teach others what they had learned. (Estimates on training time needed varied from two to five months.) (Many expressed a desire for the substitution of ARMVAL training for their regular training.)]

More realistic field training and live fire exercises are needed.

The use of NBC and smoke should be included in the training program.

The Marines need a dedicated OPFOR training unit.

The training program should be expanded to encompass many different aspects of Threat tactics and operations.

This type of training gives us much more "hands on" time, which we need.

We learn more by facing an enemy that is going to operate differently than we do with Blue-on-Blue training.

The training can become boring and routine once you get used to the OPFOR. Maintaining interest is a problem.

OPFOR Impact on Job Performance

Basic job was not affected, the speed of performance had to be quicker and better.

We were not used to the fast reaction times. Everything came so fast that it was hard to perform.

Major effect on the individual was psychological.

Does OPFOR Training Cause Confusion?

A comment often heard is that OPFOR training would confuse US training and therefore be detrimental to US Forces. The US Force crewmen responded in this fashion:

OPFOR training would not be confusing. It lets us know what is happening and what we can expect the OPFOR to do.

We learned what the OPFOR could do and this helped us to plan our own tactics.

We learned to incorporate some of the good aspects of OPFOR into our own training. It gave us a chance to compare tactics.

Can understand more about their doctrine.

OPFOR training might become confusing, depending on how long a person played the part of the OPFOR.

Lessons Learned About OPFOR

OPFOR command and control is disrupted if they lose their leaders.

They tended to operate in little groups and sometimes became disorganized after their leaders were hit.

It is hard to believe how fast they move until you see it in the field. The OPFOR ratios have to be seen to know what you will be faced with. They come hard and fast.

This type of training gives you confidence in yourself and shows you that the OPFOR can be beat.

Once you see the OPFOR, you develop a different concept of their operations.

We know now that we can stop them.

If the OPFOR used our tactics, they would do better.

We do not realistically portray Soviet tactics.

Discovered that the OPFOR was more vulnerable than expected. They were easy to locate.

One of their greatest vulnerabilities is following their commander's last order (if he is killed).

OPFOR show no initiative in their doctrine.

OPFOR cannot change what they started due to their rigid adherence to fixed plans.

OPFOR is not stupid. When their leaders are hit, they are going to know what to do. They are not going to continue like a mindless robot.

Miscellaneous Comments

Due to the test constraints, the maneuvering was limited and became repetitious.

Maneuver room was limited by the confines of the test and after a number of trials had been run, the terrain was familiar to both sides. Each side started to anticipate where vehicles would take up position and both sides knew where the other force would be located. This affected the way in which each side operated.

Test constraints limited the firing time of each vehicle. This was unrealistic as some loaders could load faster than the time limits established for the test. Tanks had to wait approximately 5-10 seconds before they could shoot again.

Could not have performed as well against the OPFOR if we had not practiced against their type of tactics.

One of the biggest mistakes made by the OPFOR in defense was their doctrine of not firing outside their assigned sector of fire.

The OPFOR shifted their fire, in the defense, from the US base of fire element to the US maneuver group. If they had split their fire between both groups, there would have been fewer losses on their part. Evidently their doctrine is to fire on the most immediate threat, which in this case was the assaulting force.

CREWMEMBER INTERVIEWS: OPFOR

OPFOR Maneuver Speeds

The main problem in maneuvering at high speeds was firing on the move.

All vehicles could not maintain the same speeds, which caused problems in maintaining combat formations.

The dust cloud created by the vehicles literally blinded us. We could have gone faster, if it had not been for the dust.

The tanks generally lead the formations and had an easier time than the rear vehicles.

One of the main things to worry about was having vehicles break down while in formations. Due to the dust, the rear vehicles could not see and might collide with vehicles that were forced to halt, or could not maintain a fast enough speed.

Being thrown around within the vehicles due to the fast speeds initially created some anxiety. Experience tended to negate these this effect.

Operational speeds were from 20-30 mph.

OPFOR Formations with Massed Vehicles

Vehicles got easily lost from their group.

Visual signals could not be used because of the dust.

Fear of running into someone was a problem.

Flag signals and radio code words were used to control the formations.

It did not take long to learn OPFOR combat formations.

As a commander, it was difficult to tell which element out of the large number was yours.

If a vehicle made a wrong turn, it was difficult to try and bring them back into formation.

All hand or flag signals began to look alike when we got approximately 300 meters away.

Commanders' vehicles were very difficult to identify. A color or symbol marking is needed.

Each vehicle should have had some identifying marking so we could recognize each section or platoon.

OPFOR lack of adequate two-way radio communications was one of their worst faults. They did have an advantage of being able to maneuver a whole unit on one command, if their communications were not jammed.

Attitudes and Opinions About OPFOR

Almost all the OPFOR players felt they had benefited from the training.

The OPFOR training program should be broadened in scope. Just learning combat formations becomes boring.

We are assuming that our OPFOR training is realistic and that we are depicting Threat tactics. In either case, it is better than doing nothing.

We do not believe that OPFOR commanders are as inflexible as we are being taught. We feel that we are underestimating the OPFOR by this kind of training. We are being told that "if we knock out their leaders, we'll win."

A lot of our personnel doubt the realism of the training. The OPFOR does a lot of things that do not make sense. We doubt the validity of their actions. Would the Threat really act that way is what we are asking.

We feel we are only being taught some of the OPFOR tactics, not all of the tactics at our level.

Before we started ARMVAL, we felt we did not need more time for training, but after the experimental trials started, we realized that we needed more field combat experience.

Difficulties in Learning OPFOR

OPFOR was difficult in the sense that they do a lot of things which are contrary to what US Forces are trained to do. For example, OPFOR is concerned with terrain driving and they use a lot of speed. US Forces take longer to move into battle and the OPFOR moves quickly into battle.

The most difficulty we had was operating in the dust at fast speeds and avoiding bruises while going over rough terrain.

Firing on the move at fast speeds proved to be difficult.

We had to reduce our speeds in order to retain control. Our initial speeds were too fast, now we are operating at approximately 10-15 km per hour.

Changing combat formations at high speeds was difficult to learn.

Chapter 3

ARMVAL TRAINING PROGRAM EXPERIENCES

This chapter summarizes the responses of the US/OPFOR players concerning training that took place prior to the actual experimental trials. Some of the practice training took place at their home station (Camp Pendleton) and the rest was conducted at Fort Hunter-Liggett. The OPFOR was assisted in their training by FORSCOM's Opposing Force Training Detachment, Red Thrust, located at Fort Hood, Texas.

Of main concern were the differences noted by respondents when comparing their regular training and the training they experienced in preparing for simulated combat against a trained OPFOR opponent.

US FORCE RESPONSES

Training Program Differences

Participants were asked to list the differences between their regular training and the training they underwent in preparation for ARMVAL. The items listed below cover a large spectrum of any training program, but seen to emphasize differences in tactical employment.

Fire command usage. [NOTE: The fire commands were standardized for the purposes of the test. The fire command elements were used as cue words or checkpoints for keying data collection points during the firing engagements.]

Tactical techniques for engaging targets.

Employment of different tactical maneuvers against the OPFOR.

Quicker response times in accomplishing combat job requirements.

The use of traveling overwatch and bounding overwatch was different from the combat formation used in regular Marine training.

AMTRAC personnel were exposed to land tactics, whereas their regular training is mostly directed toward amphibious assaults. In some cases, this was their first exposure to working with tanks as a combined arms team.

Use of good hulldown fighting positions.

Employment of precision fire.

Operation and employment of the LCV.

Increased tactical driving training which included driving with the hatches closed (buttoned up).

Employment of experimental gunnery techniques.

Employment of developmental tactics.

TOW was employed at times in a different manner than normal.

Displacement distances were increased.

Dragons were employed in the offense.

Impact on US Job Performance

Initial impressions by the US players concerning impact on job appeared to be centered on things concerned with movement (e.g., moving at faster speeds and moving, utilizing better cover and concealment). Note that one of the responses below concerns the repetition of the training. This type of comment at the crew level occurred fairly frequently concerning US as well as OPFOR training.

Job training became repetitious as we kept using the same tactics.

Learned to keep searching for targets after the initial target engagement.

All movements were made at faster speeds.

We fought using more combat formations and tactics.

Moved positions more frequently due to artillery.

More awareness of terrain and use of cover and concealment.

Employed SAGGER drills (move fast, slow, zig-zag).

Became more professional in performing my job.

Learned how to conduct a fighting withdrawal.

Learned to keep a tighter control over my vehicle.

US Training Program Emphasis

These are some of the subject areas which were stressed during the ARMVAL pretraining period:

US training emphasized speed of performance and maneuvering with critical use of the terrain.

Better fire control during suppressive fire.

Better hull-down positions.

Extended vehicle intervals during the attack.

OPFOR limitations, capabilities, movement, formations.

Fire commands.

US techniques of movement and tactics.

Performance with speed and accuracy.

High speed evasive maneuvers (dash to cover).

Application of cover and concealment.

Maneuvering of LCVs.

Avoidance of engagement by OPFOR tanks.

Importance of knowing your job.

Proper radio-telephone procedure.

Techniques of terrain movement.

Use of SAGGER drills.

Gunnery techniques during evasive maneuvering.

Engagement using target priorities.

Selection of firing positions.

US Force View of the Effectiveness and Weaknesses of the OPFOR

Listed below are the first impressions derived from observation in the field and implication from the tactics of what the US Force felt the OPFOR did effectively and also what they considered to be OPFOR weaknesses.

OPFOR effectiveness

Use of mass formations with rapid speed during the attack.

Use of good hull-down positions in the defense. It was difficult to see and hit them.

Use of mass firing against a single target.

Defense tactics.

OPFOR weaknesses

Presented a large target in the attack.

Moved without cover and concealment.

Lost control when their leaders were killed.

Inflexible formations made them vulnerable to air attack.

As OPFOR tanks got killed, a large gap was left in their firing lanes because their doctrine did not allow them to fire outside their assigned sector of fire. This allowed the US Force to move in those lanes over open terrain at close ranges.

Tended to bunch-up during movement.

Platoon leader was always in the lead tank, which made it easy to recognize their leader's vehicle.

Did not employ evasive maneuvering.

Were unable to change positions during the defense.

Covering vehicles (fixing force) did not use their firepower; the assaulting vehicles provided the firepower.

Lack of radio communications caused the OPFOR to be disorganized.

Used one battle plan; if that failed they were wiped out.

Committed all of their forces at one time, resulting in a lot of losses before they could overrun us.

Employed a forward slope defense.

(Authors' Note: The rigid adherence to preplanned, carefully formulated battle plans were cited as weaknesses throughout the interviews. The openness of OPFOR maneuvers is something that was questioned by the players. They expressed disbelief that the Soviets would really conduct their tactics in that fashion.)

OPFOR Training Program Emphasis

The soldiers who comprised the US unit were asked to list anything they felt should be included in a US/OPFOR integrated program which would improve their performance against an OPFOR unit. The list is fairly long but each item is critical to better tactical employment.

Multiple target engagements against a large attacking mass.

Use of smoke during field exercises.

Emphasis on hit-and-run tactics.

Conduct of ambushes.

Maneuvering without the use of radio communications.

Evasive maneuver training.

Firing on the move and improved gunnery techniques.

Realistic combat simulators (mines, gas, etc.).

Emphasis on better techniques for establishing coordination between elements.

Simulators that would duplicate actual firing signatures.

Emphasis on how to move in a combat environment.

More field training against an OPFOR unit.

Development of more SOPs to rapidly counter OPFOR actions.

Briefings on what is to be accomplished before moving out.

Reduction of radio traffic.

Information on when to pull out of a position without being told.

Training in assuming command in an emergency.

More emphasis on how to conduct retrograde operations.

Increased emphasis on live-fire exercises.

More radio-telephone procedures training.

Intensive training in defensive employment.

Increased training on how to fight at ranges of 2000 meters or less.

Better ways of depicting how to deploy in different situations.

Incorporation of a reliable hit/kill indication system.

Increased drill exercises.

Training in employment of TOWs and Dragons.

OPFOR RESPONSES

Training Program Differences

The training program differences, which the OPFOR players discovered, limited them in almost every sense. The rigid didactic obsession to control everything made them appreciate the more sophisticated tactical approach followed by the US Force. Most dramatic was the use of high speed by the OPFOR while maintaining control over the large mass formations. Below is a list of the differences the OPFOR players noted between their usual training and training to play an OPFOR unit.

Use of different tactical formations.

Employment of suppressive fire.

Conduct of operations without using radio communications.

Use of flag signals.

Rigid adherence to obeying orders.

Target engagement methods.

Performance of tactical moves at fast speeds.

Use of fastest routes, not the covered and concealed routes.

Training in the way the Threat thinks.

No use of personal initiative.

Employment of strict formations and routes.

Fire only within the assigned sector of fire.

Attack with no evasive maneuvering.

Fire on the move instead of from a short halt.

Operation with only one radio frequency.

Change of combat formations while maintaining speed.

Use of different fire commands.

Employment of strict fire control procedures.

Use of the gun tube for orienting fires.

Impact on OPFOR Job Performance

Listed below are some of the things which an OPFOR player must do differently from a US player:

Learn different combat formations.

Learn different tactics.

Cannot communicate with other elements (only a platoon commander can do this).

Not allowed to capitalize on any weaknesses or opportunities, no initiative whatsoever.

Weapons system capabilities were range limited and different from US systems.

Cannot break formation to seek cover.

Company commander's orders must be followed to the letter.

Flag signals were different.

Everything done by the book.

Perform under buttoned-up conditions.

Operate at high speeds.

OPFOR Training Program Emphasis

OPFOR training program emphasis was placed on the mechanics of emulating the look and maneuver of a Soviet unit. OPFOR players operated in a highly disciplined environment.

Rigid adherence to combat formations.

Maintenance of proper speeds.

Observation of flag signals.

Proper fire commands.

Obedience to all orders as they are given.

Fire within assigned sectors.

Fire control and discipline.

Adherence to safety procedures.

No display of initiative.

**OPFOR's View of Its Own Effectiveness
and Weaknesses**

OPFOR effectiveness was characterized by its speed and large, well controlled combat formations. The OPFOR strengths also created what the players identified as their weaknesses. The lack of flexibility in their combat formations made them easy targets. They charged straight and deviated less from the original attack line of direction.

OPFOR's view of its own effectiveness

Rapid speeds in movement to contact.

Coordination of large scale attack formations.

Volley fire against an identified target.

Maintenance of a constant speed while moving.

Aggressive behavior.

Employment of maneuvering elements.

Use of suppressive fire.

Strict adherence to maintenance of combat formations.

Ability to fire on the move.

OPFOR's view of its own weaknesses

Lack of good communication.

Control of fire within an assigned sector.

Rigid combat formations.

Lack of strong leadership.

Combat line assaults.

Poor chain of command in an emergency.

Following of last order if the commander became a casualty.

Use of tactic of charging straight at an opposing force.

Vehicles that always exposed themselves too much.

Lack of evasive maneuvering.

Fighting with closed hatches (caused them to detect fewer targets).

OPFOR's View of US Force Effectiveness

The OPFOR players were asked what things the US Force did effectively. Here is what they listed:

Rapid displacement between firing positions.

Use of hit-and-run tactics.

Use of TOWs to cover the retrograde of tanks and LCVs.

Application of cover and concealment.

Selection of effective firing positions.

Flexibility in reacting to the OPFOR.

Use of long range fire of TOWs in the attack.

Tried to engage OPFOR leaders first.

Rush-to-cover tactics.

OPFOR's View of Observed Improvements in US Force

The OPFOR players were asked to list any improvements which the US Force made in their performance as they gained more experience.

Began to react differently to OPFOR tactics after they became familiar with them.

Began to use cover and concealment to better advantage.

Increased the speed of their assault.

Employed more long range fires.

Sited their vehicles in good hull-down positions.

Continued the mission even though their leader became a casualty (leadership succession).

Improved coordination between elements.

Employed terrain driving techniques.

Improved hit-and-run tactics.

Miscellaneous

Some opinions by the OPFOR players concerning US adaptability in countering the OPFOR were:

It took the US Force quite a while to understand OPFOR tactics, but once they did, they were able to anticipate what the OPFOR was going to do next.

Training time estimates from a minimum of two weeks to a month seem to represent the time required to develop sufficient experience in the US Force to begin countering the OPFOR.

The initial shock of the OPFOR mass would bog down most of the US Force, but then they would adapt and do well.

OPFOR tactics always seemed to surprise the US Force if the attack was made from a flank or oblique line of approach.

(Authors' Note: The range and scope of responses were obviously diversified, considering that they came from platoon commanders, vehicle commanders, and crewmen. The information gained from those interviews indicate that learning was taking place for both the US and OPFOR players.)

OPFOR Opinions About Their Own and US Force's Strengths and Weaknesses

Things OPFOR did well

Fired on the move at high speeds.

Had good control over all vehicles.

Rigidly controlled fire in their sector and used platoon volley fire.

Positioned the T-72s (simulated) where they had good fields of fire.

Portrayed the role of the OPFOR well.

Things US Force did well

Kept the TOWs out of OPFOR range.

Used Copperhead and TOW well. TOWs engaged at 3000 while rest of the US vehicles waited for closer engagement ranges.

Made maximum use of cover and concealment.

Some vehicles could pull up, fire, and back down before counterfire could react.

Started to employ Dragons on the flanks.

Common mistakes by OPFOR

Did not utilize the firepower of the ZSU 23-4 against ground targets.

Did not change firing positions often enough.

Vehicles fired out of firing sectors without permission.

Tended to open fire too soon.

Failed to mass fire on priority targets.

Did not shift sectors of fire fast enough to engage US Force.

Large amounts of dead space in the defensive sectors due to poor fighting position selection.

Could not fire at targets of opportunity if it was not in the OPFOR vehicle's sector of fire.

Chapter 4

SUMMARY OF COMBAT MISSIONS: LESSONS LEARNED

This chapter presents a summary of US/OPFOR players' responses concerning the three combat missions conducted during the ARMVAL experimental trials. The three combat missions performed by the US Force were: (1) Establish a Blocking Position, (2) Friendly Attack, and (3) Friendly Defense. A short scenario is presented with each mission to establish a reference framework for the reader.

Some general comments concerning employment of the Lightweight Combat Vehicle (LCV) have been retained. Specific comments regarding the LCV and developmental tactics have been withheld from this report.

Using realistic tactical scenarios, the three major experiments consisted of a number of two-sided, force-on-force engagements. Within each experiment there were a number of trials in which different mixes of weapons systems were varied to test the effectiveness of different force compositions. The major objective of ARMVAL was to evaluate the contribution of the LCV to the effectiveness of forces engaging in combat missions.

The LCV was employed in a manner which would maximize to the utmost its agility and firepower while minimizing the vulnerability of its light armor. A force ratio of 4:1 was selected, in favor of the attacker, to provide sufficient targets on the battlefield. In order to make an assessment of the LCV, combat operations were conducted, first using current antiarmor systems to obtain baseline data, and then with the LCV substituted for current weapons systems.

The OPFOR was portrayed by Army and Marine personnel. FORSCOM's Opposing Force Training Detachment, Red Thrust, located at Fort Hood, Texas, assisted in the development of a Threat training program for test personnel portraying the OPFOR. The OPFOR used conventional equipment to simulate Warsaw Pact weapons systems. The Marines used their own LVTP-7 amphibious personnel carrier (AMTRAC) in the test experiments.

The LCV concept vehicle was developed by modifying the M551 Sheridan to give it greater speed, mobility, and agility. The LCV is light in weight, with an improved suspension system, high horsepower-to-weight ratio and an advanced fire control system. The LCV weighs only 13 tons and can move from a standing start to 30 mph in 7.5 seconds and can reach speeds up to 60 mph.

The tactical scenario for the first mission was as follows:

EXPERIMENT I. FRIENDLY ESTABLISH A BLOCKING POSITION

Scenario. A friendly infantry position (reinforced), as part of a larger helicopter assault force, has been inserted into the Amphibious Objective Area (AOA) to establish a blocking position to deny OPFOR reinforcement from the south. An OPFOR tank battalion, as the advance guard of a motorized rifle regiment, is ordered to eliminate the blocking force that is moving into position.

a. **Friendly Mission:** Establish a blocking position and deny OPFOR movement into the AOA.

b. **Friendly Force:** The Friendly Force consists of a reinforced infantry platoon equipped with medium assault weapons (MAWs) and heavy assault weapons (HAWs). They are supported by "on call" indirect fires. The Friendly Force will not have tanks or armored personnel carriers (APCs), but will have light weight vehicles (LCVs) that will be an integral part of the force.

SECTION I: US FORCE PLAYER RESPONSES

Section I contains all the responses the US players made concerning each of the three combat missions. They were first asked to compare US and OPFOR tactics used during the blocking position mission. Their responses fell into three distinct categories. The first category is a list of descriptors which characterize the tactics used, the second category is conclusions about the mission based upon their experience at ARMVAL in performing the mission, and the third category is recommendations for improving the tactics.

US Force Tactical Characteristics During the Blocking Mission

Hit and run--never stayed in one place.

Objective was to slow down and harrass the OPFOR.

US Force spread its forces more than the OPFOR.

US Force shot from standoff ranges.

US Force performed well, especially in the defense.

LCVs stayed too long in one position.

US Force used a minimum of men and equipment to fight a delay.

Conclusions

OPFOR would win if it was a real-life situation.

US Force should not have tried to take out the OPFOR all at once.

OPFOR was forced to deploy into their combat attack formation, which did buy more time for the US Force.

Recommendations by US Force

Could use more artillery to stop the OPFOR advance.

TOWs should be able to fire more than one shot before falling back.

An ambush type blocking force would be better than a head-on confrontation.

Insure that the OPFOR combat outpost patrol is knocked out. This results in mass confusion for the OPFOR's main body.

It would be better to get behind the OPFOR and fire at them as they move forward.

Should have better coordination between tanks and TOWs for covering withdrawal (escape) routes.

OPFOR Tactical Characteristics During the Blocking Mission

OPFOR believed in an overwhelming superiority of mass.

OPFOR believed in showing force.

OPFOR attacked straight at US Force in a combat line.

OPFOR appeared confused until they located the US Force. Once US positions were located, they put out everything.

Set up a base of fire, then enveloped or moved on line and assault.

They did not stop even when open to being destroyed.

Used a straight attack with no evasive maneuvering.

Conclusions

OPFOR did not use land tactics.

OPFOR frontal attack exposed them to excessive losses.

OPFOR tactics could take over a position quickly.

OPFOR would eventually overrun its opposition.

OPFOR is sure to win if they outnumber their opposition.

OPFOR did not use good tactics, took too many losses.

Recommendations by US Force

Can't be stationary, must be able to move and hit OPFOR from all sides at once.

US Force must use cover and concealment to beat the OPFOR.

US Force Opinions About Their Own and the OPFOR's Strengths and Weaknesses

The players were asked to list those things that both forces performed well and then to list the mistakes they made.

Things US Force did well

Used target firing priorities.

Team coordination was accomplished well.

Used cover and concealment.

Established good firing positions.

TOWs did an outstanding job in neutralizing the OPFOR.

Used suppressive fire.

Things OPFOR did well

Laid down a good base of fire.

Tried to stay concealed until they were close and then attacked at high speed.

Used good hull-down positions.

Attacked like a metal rolling wall.

Rate of advance was fast.

Common mistakes by US Force

Displaced too slowly against the OPFOR's fast advance.

Skylined vehicles for long periods of time.

Exposed vehicles during movement.

Common mistakes by OPFOR

Lack of initiative to take any independent action.

OPFOR constantly did the same thing, did not use tactics.

Maintained tight formations while moving over exposed ground.

Used column formation too much. When lead vehicle was hit, the rest would continue on same avenue of approach like a column of ducks.

US Force: Changes in Operational Techniques Over Time

The US players listed those things which they had to change to be more effective against the OPFOR.

Moved much faster.

Learned to use the terrain better.

Started to ambush more.

Changed positioning of ATGMs, moved from hilltops and placed on slopes.

Displaced quicker with displacement positions further apart.

Increased distance between weapons systems.

Became more cautious.

Started to use individual initiative.

Started to stress better cover and concealment.

Impact on US Job Performance

Responses were varied on what changes were made in job performance during the blocking position mission. The basic job structure did not appear to be affected. Regular training did not entail working with as many people and vehicles.

ARMVAL training was more realistic and challenging.

We had to try harder.

A real-life situation motivated more than battle simulations.

Much more control was exercised over the TOWs.

Carriers were just taxis for the Dragon team; no impact on driver's job, created a measure of boredom.

Lessons Learned About Themselves and the OPFOR

The US Force was asked to list the major things they had learned from conducting this type of mission.

Lessons learned about themselves

Had to work as a team to succeed.

Maintained attack momentum, otherwise OPFOR would kill us.

Used all our weapons.

Used cover and concealment.

Learned how each section or squad operated.

Had to know beforehand the quickest and best way to displace.

Tended to overexpose ourselves.

Were susceptible to artillery fire (especially MAWs and HAWs).

Commands changed when in battle.

Were vastly outnumbered.

Central control of TOWs did not seem to work well; TOW personnel were trained to be self-sufficient.

Lessons learned about the OPFOR

OPFOR continued to move forward even when attacked by Dragons.

OPFOR moved rapidly before and after contact was made.

Used suppressive fire very effectively.

OPFOR was very vulnerable as they moved in the open and in rigid formations.

OPFOR established a strong defensive system.

Had to be extremely alert or we may not have seen the vehicle that shot at us.

EXPERIMENT II FRIENDLY ATTACK

Scenario. Friendly Forces landing across the beach have linked up with heliborne forces. This force is equipped with tanks, heavy assault weapons (HAWs), medium assault weapons (MAWs), armored personnel carriers (APCs), and light weight combat vehicles (LCVs) and is now engaged in conducting operations against OPFOR pockets of resistance.

a. Friendly Mission: To attack OPFOR defensive positions and eliminate the OPFOR resistance within the Amphibious Objective Area (OAO).

b. Friendly Force: The Friendly Force consists of a tank company (-) reinforced with MAWs and HAWs, APCs, LCVs and supported by "on call" indirect fires.

The following is a summary of the US Attack Mission as seen through the experience of the US Force. Our tactics appear to be less regimented than the OPFOR's, more flexible, and much more cautious.

US Force Tactical Characteristics During the Attack Mission

US tactics were typified as being extremely cautious in looking for the OPFOR.

Tactics worked well after a reconnaissance had been effected.

Individuals just used their own initiative in using US tactics. If something went wrong, action was taken in accordance with the problem.

Leadership was shown down to the level of the individual tank, as compared to OPFOR leadership which remained at much higher levels.

US tactics were more like a dash-to-cover type of attack, during which suppressive fire was placed on the objective.

US used evasive maneuvering.

US tactics were characterized by speed, maneuverability and accuracy.

Used a lot of communication.

Relied on getting to the target by means of fire and maneuver.

Used cover and concealment.

Tanks were employed to the front, TOWs to the flanks, and carriers with Dragons to the rear.

Took everything into consideration before moving forward.

Our basic tactic was to use a base of fire and an enveloping force.

Conclusions

US Force did not use preplanned maneuvering in working with artillery, Dragons, etc.

US tactics were about as good as they can be.

No one knew what to do when the OPFOR overran the strongpoint.

The US platoon that attacked appeared to sustain fewer losses than the US platoon in the base of fire.

Our tactics were better because we did not show ourselves as much.

LCVs were very effective when used as a base of fire or in the suppressive fire role.

Our whole attack was keyed on unit coordination. If the coordination between the attacking force and suppressive force was good, the attack was successful. Coordination is the main factor in succeeding.

US tactics seemed to be planned better than OPFOR tactics.

(Authors' Note: OPFOR defensive tactics were fairly simple and forthright. They prepared their positions well and then waited. When attacking an OPFOR defensive

position, what was of utmost importance was knowledge of how much they were prepared in depth. The initial positions were just the frosting on the cake, and they did not represent the whole scheme of things. It is important for US Forces to understand these factors or else they could be misled by our representation of an OPFOR Threat defensive posture.)

Recommendations by US Force

Need more antitank weapons systems.

Our infantry should be better armed so they can stand up to armor. Infantry fighting vehicles have little defense against OPFOR tanks.

Should employ more artillery.

Our base of fire should be strengthened as the attacking unit lost too many of its vehicles.

We should develop new evasive maneuvers to reduce our casualty rates.

All TOWs should be used in overwatch so they can view the entire battle area.

LCVs should employ more evasive techniques to make them more difficult to hit.

If the infantry were better armed, the OPFOR's first echelon could be blunted.

OPFOR Tactical Characteristics During the Attack Mission

No attempt was made to use evasive maneuvers or to move over open ground.

They did not fire outside their assigned sectors of fire.

Used a dug-in defense which made it difficult to knock them out.

Never moved on defense.

Used good cover and concealment on defense; their hull-down positions were excellent.

No small unit leaders.

Did not use a base of fire.

Commander was not in a good position to control.

Burying vehicles in defensive positions proved very effective for the OPFOR.

Conclusions

OPFOR actions were always predictable after contact was made.

Could not knock out all their vehicles; there were too many.

They had a massive firepower advantage over us.

Interlocking fields of fire on defense were good.

The use of pre-dug, hull-down defensive positions on the same line or back 50-100 meters from their initial positions did not give up much ground; they did not move.

Premature firing disclosed their firing positions.

Found it difficult to believe that the OPFOR would expose themselves needlessly.

A forward slope defense seemed absurd.

If the OPFOR had no boundaries, we would have been in deep trouble.

Recommendations by US Force

(No recommendations made.)

US Force Opinions About Their Own and the OPFOR's Strengths and Weaknesses

The US Force listed the following things which were done well by both the US and OPFOR and those things which were the most common mistakes.

Things US Force did well

Formations were very good.

Used cover and concealment to best advantage.

Suppressive fire technique was employed well.

TOWs and Dragons were employed well.

Used LCVs as base of suppressive fire.

Employed weapons at maximum standoff ranges.

Were accurate with the various weapons systems.

Things OPFOR did well

When they located a target, they took it under fire with 2-3 tanks.

Their dug-in positions were excellent; could only see the main gun barrels.

OPFOR gunners were excellent in getting hits.

Common mistakes by US Force

Lack of good planning and poor execution of the plan resulted in too many tanks being killed.

Poor mass fire coordination on priority targets; fired only a few rounds and then moved out to other positions.

Failed to conduct a coordinated attack; attacked by sections (either tank or LCV) and then neutralized one section, then started in on the next section.

Some vehicles got lost due to a failure to perform high speed land navigation well.

Tended to maneuver too slow.

Lack of good communications.

Did not take full advantage of cover and concealment; tended to move in the open too much.

Vehicles tended to bunch-up during maneuvering.

Common mistakes by OPFOR

Used no initiative. When leaders got hit, they did only what their last order told them to do.

Did not use evasive maneuvering techniques, nor did they attempt to use any cover or concealment.

Depended too much on their leaders.

Did not use enough tactics.

(Authors' Note: OPFOR mistakes as identified by the players tended to be the same across different missions. A major fault of US Forces centered around problems of command and control. As the US Force gained more experience, these types of problems appeared to diminish, as indicated by the changes which were made by the US Force.)

US Force: Changes in Operational Techniques Over Time

Coordination between the suppressive element and the maneuver element improved.

Everything was accomplished in a more professional manner.

Our forces showed more aggressiveness.

Began to use the terrain more to our advantage; better use of cover and concealment.

Began to use different plans of attack.

Movement was quicker and better.

Vehicle commanders controlled their vehicles more.

Started to attack from multiple directions.

Emphasized target priorities (OPFOR tanks were primary targets).

Used LCVs to envelop the OPFOR.

Reduced attack across open ground.

Increased volume of fire.

Positioned TOWs out of OPFOR tank ranges.

Displaced to greater distances.

Expanded area of operations.

Impact on US Job Performance

Job performance was much expanded and more demanding as a result of a competitive OPFOR. Introspection of one's job appeared to be heightened as a result of such field exercises.

LCV jobs required more speed in performance, for example, driving skills were more demanding, driver had to be more alert in picking the best cover and positions.

Driver of the LCV had to be able to select positions where the vehicle could get a quicker start when it moved.

Job performance had to be quicker due to the large number of targets.

Being fired upon by lasers made us think and plan what to do next.

Had to be more aware of what was going on.

Had to search more for good cover and concealment.

Used SAGGER drills when we came to an opening where we were exposed.

Tactical formations were more realistic (during the ARMVAL test) which encouraged more precision in performance.

Having a realistic hit/kill simulation added to the realism.

Closest to combat familiarization you can get.

Gave us a chance to maneuver with a large force. Our regular training was only at the platoon level, and we only trained 3-4 days out of each month.

LVTP-7 crewmembers did much the same job, no matter what the mission was during the ARMVAL test.

Lessons Learned About Themselves and the OPFOR

It is interesting to note that one of the responses below indicates the feeling of performing defensive actions within an attack mission. It appears that a defensive mind-set is one of the results of US training. Major lessons learned are listed below.

Lessons learned about themselves

Used small units or sections, all moving toward the same objective.

Maintained a defensive posture, even in the attack.

Should move tactically.

Placed a lot of emphasis on the base of fire.

Learned the capabilities and limitations of our equipment and tactics.

Learned how to use our weapons systems better.

Carriers should have had TOWs mounted on them.

Needed to improve our command and control to effect better coordination.

Learned what we could do to the OPFOR in combat.

Lessons learned about the OPFOR

They all worked together with one thing in mind--to get to the objective. They all had the same mission and moved together, using a high volume of fire from each vehicle.

OPFOR used no initiative, but were aggressive. They followed the leader's orders.

On defense, their dug-in defensive positions were good against a ground attack. Made it difficult to pick out targets.

Learned how the OPFOR might operate in a defensive posture.

One of their weaknesses was that they could not fire outside their assigned sector of fire.

Would now know what to do against them, if we had to fight them. Know how they move and how to attack them.

By operating buttoned-up, they had difficulty in detecting air support.

OPFOR continued to move when receiving fire.

OPFOR tanks did not provide mutual support for each other.

OPFOR could be beaten.

EXPERIMENT III FRIENDLY DEFENSE

Scenario. A Friendly Force landing on the beach continues to conduct link-up operations with the heliborne force inland. The forward edge of the battle area (FEBA) has been established within the force beachhead line (FBHL) and an infantry platoon (reinforced) occupies a 300-500 meter portion of the perimeter frontage. An OPFOR motorized rifle battalion reinforced with a tank company is ordered to penetrate the FEBA and seize objectives within the FBHL.

a. Friendly Mission: To establish defensive positions to deny OPFOR penetration of the FEBA.

b. Friendly Force: The Friendly Force consists of an infantry platoon reinforced with tanks, medium assault weapons (MAWs), heavy assault weapons (HAWs), light combat vehicles (LCVs), and supported by "on call" direct fire.

The players mentioned similarities between the defense mission and the blocking mission (Experiment 1). In both cases, forces were sent out to gain contact and then fell back due to OPFOR pressure.

Trying to reduce the large force to improve the ratio was one of the most serious of US problems, even with the long range support fires of TOWs. Retrograde movements were probably the most difficult to conduct and with the strong OPFOR pressure, it was made even more difficult. The OPFOR movements did not change much in this type of mission. They still lined up and charged at high speeds. Here is how the US Force characterized their own tactics and the OPFOR's.

US Force Tactical Characteristics During the Defense Mission

Employed weapons systems at maximum ranges.

Company tactics were delegated down to platoon or sections.

Used TOWs and Dragons for support fires.

Unit in contact displaced at 1500 meters.

Stayed in position too long before pulling back.

Conclusions

We did not dig in like the OPFOR.

OPFOR movement was basically the same for this experiment.

There were too many OPFOR vehicles to handle.

We kept losing ground and were finally overrun.

In the TOW section, job performance between the Meeting Engagement and Defense was virtually the same.

LCVs were too fast to receive any accurate fire and worked well.

If we knocked out the first 2-3 tanks, the OPFOR became confused.

Our tactics were more flexible.

The combat outpost should have decimated the OPFOR as much as possible before reaching the defensive positions.

Recommendations by US Force

We need more firepower.

Our tactics need some revision; we cannot occupy ground and keep falling back.

OPFOR Tactical Characteristics During the Defense Mission

Stayed in the open and moved with fast speeds.

Had more firepower.

Moved into a combat line and attacked in waves.

Had no maneuverability.

Did not use cover or concealment.

Tended to bunch-up with that number of vehicles.

Conclusions

OPFOR knew what to do, had one tactic, and one doctrine.

OPFOR had a hard time getting hits while moving at fast speeds.

They were easy targets.

OPFOR tactics were effective due to our tactic of continually falling back.

OPFOR used the same tactics all the time.

Recommendations for OPFOR

(No recommendations were made.)

US Force Opinions About Their Own and the OPFOR's Strengths and Weaknesses

Things US Force did well

The things which the US Force did well during this mission were the same things they did well in the previous two missions.

Used team work within platoons, used terrain and concentrated fire.

Used fire and maneuver well.

Displaced using high speeds.

Decimated OPFOR lead vehicles well.

Provided good suppressive fires.

Attained a good number of OPFOR kills.

Things OPFOR did well

Used their fast shooters well, more accurate and faster.

Employed their superior firepower well.

Maneuver speeds were fast.

Attacking with a large mass was effective.

Employed Soviet doctrine accurately.

Common mistakes by US Force

The mistakes made were repeated throughout all missions. The use of cover and concealment by US Forces could have been better as well as having better coordination between elements.

Stayed in one position too long.

Did not use cover and concealment.

Disengaged too late from the combat outpost positions.

Used improper hull-down fighting positions.

Did not know what to do when things went wrong.

Lacked coordination between base of fire and enveloping forces.

Incorrect selection of positions for the TOW.

Too many broken plans due to poor coordination.

Common mistakes by OPFOR

OPFOR tactics were dictated by current Threat doctrine and could not be changed by the players. Mistakes by the OPFOR actually represented lessons learned about the Threat.

Used no cover and concealment.

Even when using dug-in positions, vehicles were still exposed.

Attacked without using fire and maneuver.

Attacked with all vehicles at the same time.

Poor dispersion of vehicles; tended to bunch-up as they moved.

Moved in exposed combat formations.

Used no evasive maneuvering.

US Force: Changes in Operational Techniques Over Time

US Forces learned to use the terrain to a better advantage and learned to employ their forces in a more flexible fashion.

Started to use different tactics and formations.

Stayed away from open spaces.

Changed displacement times, started to move earlier.

Used all elements to a greater extent.

Allowed the individual tank commanders to select their positions within an assigned sector.

Started to use complete hull-down positions.

Moved elements to gain better flanking shots.

Became more mobile in employment.

Employed more hit-and-run tactics.

Impact on US Job Performance

Speed seemed to be a major factor in job impact. Tasks such as driving and firing on the move had speed as an integral part of their performance.

Lessons Learned About Themselves and the OPFOR

Lessons learned about themselves

The US defensive positioning allowed a much greater latitude for movement within the defensive position than the OPFOR allowed.

US took their objective by fire and maneuver.

US Force could not service that many targets.

Employed TOWs and Dragons to their maximum advantage.

US Force was a combined arms team.

We should displace at 1000-1500 meters.

Our disengagement speeds were too slow.

Needed more weapons at the company level to counter the OPFOR.

Lessons learned about the OPFOR

OPFOR attacked completely different than we did.

OPFOR was always dug-in well.

Attacked in mass, using speed and firepower.

Destroy their leaders and the attack will stop.

They accepted high losses.

SECTION II: OPFOR PLAYER RESPONSES

The short tactical scenarios will be given in this section to provide continuity and to act as reference, if needed.

EXPERIMENT I. FRIENDLY ESTABLISH A BLOCKING POSITION

Scenario. A friendly infantry position (reinforced), as part of a larger helicopter assault force, has been inserted into the Amphibious Objective Area (AOA) to establish a blocking position to deny OPFOR reinforcement from the south. An OPFOR tank

battalion, as the advance guard of a motorized rifle regiment, is ordered to eliminate the blocking force that is moving into position.

a. Friendly Mission: Establish a blocking position and deny OPFOR movement into the AOA.

b. Friendly Force: The Friendly Force consists of a reinforced infantry platoon equipped with medium assault weapons (MAWs), and heavy assault weapons (HAWs). They are supported by "on-call" indirect fires. The Friendly Force will not have tanks or armored personnel carriers (APCs), but will have light weight vehicles (LCVs) that will be an integral part of the force.

The OPFOR players' responses are formatted the same as the US players' responses. Here is how they compared US/OPFOR tactics on the first mission:

OPFOR Tactical Characteristics During the Blocking Mission

Always sent out a combat reconnaissance patrol (CRP) of one platoon of tanks about three minutes ahead of the main body. Upon contact, they fixed the enemy until the main body moved to their objective.

Moved at a rapid pace and only used terrain if it was in their path.

Did not stop unless killed or to fire BMP "spigot" round from a short halt.

Fired on the move until all vehicles were in line.

Stayed in column until contact was made, then moved into combat formation.

Once combat formation was executed, the maneuver was straight ahead; overrun or get killed.

Mostly column and combat line formations were used.

Had to fire only at targets that appeared within their sector of fire.

Could not stop and displace but had to move in a straight ahead pattern.

Conclusions

Predictable formations made the OPFOR an easy target.

Gained more of an understanding of OPFOR tactics.

CRP was almost always destroyed.

Showed a lack of flexibility.

Time interval between CRP and main body should be decreased to one-and-one half minutes rather than the three minute time interval used.

OPFOR is always going to have great losses.

The CRP was bait so the rest of the main body could maneuver.

Being assigned to the CRP was a death sentence.

Shocked US Force with speed and mass.

OPFOR tactics appeared to be foolish at times.

Recommendations for OPFOR

The follow-on commander should rely on strict and total obedience to commands to rapidly deploy to meet an OPFOR, hoping that not too many leaders are lost upon contact. Without the radio contact from the CRP, the follow-on force should close as fast as possible until it comes upon disabled vehicles before reacting. This is why it is important to destroy the CRP.

US Force Tactical Characteristics During the Blocking Mission

Used cover and concealment.

Used hit-and-run tactics and ran to alternate positions.

All vehicles used terrain to their best advantage.

Employed TOWs and Dragons in good cover and concealed positions; withdrew after engaging.

All vehicles did not attack at the same time.

Always engaged at standoff ranges to try to break OPFOR formations.

Fought a pop-up and shoot, fall back type of tactic.

Shoot/displace/hide/shoot/maneuver/pop-up/shoot typifies US behavior.

Conclusions

Used the same tactics that the US has always used.

US Force does not move, except backwards.

OPFOR vehicles are most prone to attack while operating in their column formation.

Recommendations for US Force

Should allow the CRP (OPFOR) to close within 1000 meters or less, then destroy them with mass firepower, surprise and shock action. This tactic would destroy the CRP while still in column and while trapped within their sectors of fire. The follow-on force would not have the early warning provided by the CRP and would not have the time to gain momentum and get in the proper formation to engage the US Force.

LCVs should not get decisively engaged too quickly.

OPFOR Opinions About Their Own and the US Force's Strengths and Weaknesses

Good performance and bad performance was the essence of these listings. They repeated the same things. The US Force employed the TOWs to advantage while seeking terrain advantages. The OPFOR used the power of their rapid momentum to gain the advantage.

Things OPFOR did well

Used vehicles to maximum ability.

Combat formations in the attack were well done.

Moved very fast and closed on US Force with firepower forward.

Got to the objective quickly and kept on pushing with lots of pressure.

Stopped for nothing.

Things US Force did well

Were able to displace rapidly while using hit-and-run tactics.

Employed TOWs at maximum range.

Concealed themselves well.

Used Dragons well.

Were able to kill OPFOR leaders early in the engagement.

LCVs were able to move around the OPFOR.

Common mistakes by OPFOR

OPFOR mistakes clustered around deviations from specific combat formations and lack of cover and concealment.

Fired before the platoon leader gave the order.

BMP gunners could not fire well on the move due to the weapon simulation being used.

Too much talking on the radio net; platoon leaders tended to talk too much.

Charged straight ahead, providing US Force with an easy target.

Did not use any cover or concealment.

Tended to bunch-up too much.

Moved too fast over terrain where the chances of getting hits were not probable.

All vehicles were not able to keep up with the formations.

Failed to use fire commands correctly.

Common mistakes by US Force

US mistakes tended to be in the areas of displacement and basic reaction times to OPFOR moves. Selection of good firing positions and tendencies to become decisively engaged plagued US Forces.

Disclosed fighting positions by prematurely firing at the OPFOR.

Positioned tanks too close together.

Failed to use all of the available firepower.

Engaged CRP too fast.

Failed to displace to the rear quickly enough.

Caught off-guard by the OPFOR's speed.

Located TOWs by their firing signature.

Failed to use cover and concealment and skylined their vehicles too much.

LCVs took too many chances by moving in the open.

Repeated the same methods of attack.

Tended to get too decisively engaged.

Fired too many times from the same position.

Chose poor fighting positions and escape routes.

Failed to engage OPFOR leaders with massed fire.

Failed to react fast enough.

US Force: Changes in Operational Techniques Over Time

As the US Force gained experience, they began to change the way in which they operated. Listed below are some of the changes:

Began to anticipate avenues of approach and chokepoints along the route of march.

Changed placement of weapons systems (LCVs, Dragons, etc.).

Engaged at TOW's maximum standoff range.

Began to wipe out CRP before they could report to main body.

Started to move back sooner before OPFOR got too close.

Started to employ Dragons on the flanks.

Selected better positions (hid vehicles well).

Increased the speed of their movements.

Moved around the base of a hill, not over it.

Started to set up more on the flanks of the OPFOR and hit from more than one direction.

Impact on OPFOR Job Performance

Learning to portray an OPFOR player required the learning of different things from that of a US player. Listed below are some of those things they had to do differently.

Learned to fire on the move.

Learned to maneuver in the open.

Learned different combat formations.

Used suppressive fire.

Maintained combat formations in dense dust.

Driving tactics were different.

Had more platoons to work with.

Could not use personal initiative.

Could not use the terrain to provide cover and concealment once spotted by the US Force.

Could not shoot outside the assigned sector of fire.

Lessons Learned About Themselves and the US Force

Lessons learned about themselves

The only variable OPFOR had was its avenue of approach, everything else was dictated by their rigid tactics.

An exposed vehicle moving at a fast speed was much easier to kill than one using terrain to mask its movement.

OPFOR needed a base of fire to help their assault forces.

If given the time to build its power and momentum, the follow-on force was virtually unstoppable.

Learned how to coordinate more with crewmembers.

Learned more about their formations and how they attacked.

Learned how to move and attack rapidly.

OPFOR was only effective when the US Force did not have everything coordinated right.

Lessons learned about US Force

Had the ability to change tactics to fit the situation, for example, changed weapons emplacement when they started to take heavy losses.

Could survive against the OPFOR.

Had to be alert for LCVs and Dragons.

US Force was quick to adapt to OPFOR tactics.

US Force was still improving (after four or more months) and had not approached their potential.

US Force needed a hard hitting, fast moving armor vehicle which could return to alternate fighting positions.

Needed to plan well for withdrawal routes.

US Force learned to hold their fire in order to get a flank shot.

Needed better training to face the OPFOR.

Coordination among units was a must, if we were to succeed.

Speed was the key to both offense and defense.

Learned to fire no more than two shots per target.

Had to be able to displace as quickly as possible.

EXPERIMENT II FRIENDLY ATTACK

Scenario. Friendly Forces landing across the beach have linked up with heliborne forces. This force is equipped with tanks, heavy assault weapons (HAWs), medium assault weapons (MAWs), armored personnel carriers (APCs), and light weight combat vehicles (LCVs) and is now engaged in conducting operations against OPFOR pockets of resistance.

a. Friendly Mission: To attack OPFOR defensive positions and eliminate the OPFOR resistance within the Amphibious Objective Area (AOA).

b. Friendly Force: The Friendly Force consists of a tank company (-) reinforced with MAWs and HAWs, APCs, LCVs and supported by "on call" indirect fires.

OPFOR Tactical Characteristics During the Attack Mission

Loss of OPFOR leaders resulted in a lack of initiative.

Individual vehicles could not select targets unless they were within their fire sector; rigid sectors of fire were a hindrance to them.

Platoon volleys on selected targets was a part of their tactics.

OPFOR defense relied on platoon leader to shift the sectors of fire to cover avenues of approach; their lack of communication could be a detriment to them.

OPFOR target priorities were the ATGMs, then tanks, APCs, etc.

OPFOR did not attempt to engage until the US Force had moved within 2000 meters.

Conclusions

Defensive force would always win.

OPFOR commander could not always control.

OPFOR weapons did not have the range capability of the US Force.

Used speed and shot well.

This experiment (Experiment II) demonstrated how well a small defensive force (OPFOR) could last when properly used.

Recommendations for OPFOR

(No recommendations were made.)

US Force Tactical Characteristics During the Attack Mission

US weapons had a greater range capability over OPFOR weapons.

US tactical normally followed this pattern: TOWs in overwatch, armored vehicles more strategically concealed, then made a high speed dash to the objective using a lot of evasive movement.

TOWs always decimated the OPFOR outside the OPFOR's range capability.

When the US Force closed rapidly, it forced the OPFOR to mass their fires on single targets, allowing other vehicles to close without getting hit.

US Force used the pop-up and pop-down techniques of fire very well.

Got better over time, coordinated their base of fire, used terrain to their advantage, and moved better.

Dragons were emplaced in exposed locations too often.

Attacking from multiple directions forced the OPFOR to split its defensive fires.

US used a fixing force similar to OPFOR, but it could attack, whereas the OPFOR could not.

Conclusions

Defensive force would always win.

US Force did not seem to use the terrain to their advantage.

US Force used mass fire on tanks first.

(Authors' Note: The US Force became more adaptable and started to employ different methods to counter the OPFOR. The OPFOR's performance appeared to be much more stable in what it did. This indicated that they were accurately playing the role they were supposed to.)

Recommendations for US Force

(No recommendations were made.)

OPFOR Opinions About Their Own and US Force's Strengths and Weaknesses

Things OPFOR did well

Fired on the move at high speeds.

Had good control over all vehicles.

Rigidly controlled fire in their sector and used platoon volley fire.

Positioned the T-72s (simulated) where they had good fields of fire.

Portrayed the role of the OPFOR well.

Things US Force did well

Kept the TOWs out of OPFOR range.

Used Copperhead and TOW well. TOWs engaged at 3000 while rest of the US vehicles waited for closer engagement ranges.

Made maximum use of cover and concealment.

Some vehicles could pull up, fire, and back down before counterfire could react.

Started to employ Dragons on the flanks.

Common mistakes by OPFOR

Did not utilize the firepower of the ZSU 23-4 against ground targets.

Did not change firing positions often enough.

Vehicles fired out of firing sectors without permission.

Tended to open fire too soon.

Failed to mass fire on priority targets.

Did not shift sectors of fire fast enough to engage US Force.

Large amounts of dead space in the defensive sectors due to poor fighting position selection.

Could not fire at targets of opportunity if it was not in the OPFOR vehicle's sector of fire.

Common mistakes by US Force

The mistakes made by the US Force seemed to be those that resulted from a lack of field training where a realistic OPFOR was used. The use of a hit/miss indicator system also contributed to lessons learned. For many, it was the first time that an accurate measurement of the hit/miss could be made.

Did not establish a good base of fire.

Deployed LCVs against dug-in OPFOR positions.

Provided OPFOR with a lot of flank shots.

Stayed too long in the open.

Failed to concentrate fire on one target to effect a kill.

Both attacking elements failed to coordinate their movements simultaneously so the OPFOR would have to split their fire. The OPFOR concentrated on one element and then the other.

Base of fire elements fired from exposed positions. Often they would fire, back down, then pull up into the same position they had just vacated.

US Force: Changes in Operational Techniques Over Time

Each time the attack mission was conducted, the US Force put into practice those lessons they learned from preceding trials. They began to use the terrain more to their advantage.

Kept TOWs out of OPFOR operational ranges.

Split forces so that the OPFOR had to split their defensive fires.

Used the tanks to provide suppressive fire at ranges of 2000 meters or better.

Coordinated their actions better.

Kept the AMTRACs closer to the tanks. AMTRACs used a zig-zag movement to avoid being hit.

Changed their avenues of approach.

Used the terrain better.

Stopped using the Dragons in exposed positions at close ranges.

Concentrated their fires on OPFOR fast shooters which allowed US vehicles to close faster.

Used volley fire.

Lessons Learned About Themselves and the US Force

Lessons learned about themselves constantly cited their inflexibility due to their rigidly controlled measures, whereas lessons learned about the US Force focused on their flexibility as compared to OPFOR (Soviet) doctrine and tactics.

Lessons learned about themselves

OPFOR could not utilize its weapons systems' capabilities to maximum capacity as firing was controlled by the OPFOR platoon leader.

Some of the OPFOR's weapons had a shorter range capability than US weapons.

OPFOR was hampered by their lack of radio transmitters.

Lessons learned about the US Force

US Force could change tactics and avenues of approach as the situation dictated.

US Force could engage at long ranges with the TOW.

Use of overwatch worked, but it was slow.

EXPERIMENT III FRIENDLY DEFENSE

Scenario. A Friendly Force landing on the beach continues to conduct link-up operations with the heliborne force inland. The forward edge of the battle area (FEBA) has been established within the force beachhead line (FBHL) and an infantry platoon (reinforced) occupies a 300-500 meter portion of the perimeter frontage. An OPFOR motorized rifle battalion reinforced with a tank company is ordered to penetrate the FEBA and seize objectives within the FBHL.

a. Friendly Mission: To establish defensive positions to deny OPFOR penetration of the FEBA.

b. Friendly Force: The Friendly Force consists of an infantry platoon reinforced with tanks, medium assault weapons (MAWs), heavy assault weapons (HAWs), light combat vehicles (LCVs) and support by "on call" direct fires.

OPFOR was characterized by strong control with rigid adherence to a fixed and determined aggressiveness in execution. The US Force was typified by hit and run, constantly moving and shifting to seek out an opportunity.

OPFOR Tactical Characteristics During the Defense Mission

The OPFOR employed a fixing force and an enveloping force, each with its own force commander. Fixing force supplied the supportive fire so the other force could maneuver.

OPFOR used good control, firepower and speed when moving to the attack.

OPFOR used a platoon column formation until attempting to close with the enemy.

OPFOR did not use tactics, just moved straight ahead.

Conclusions

OPFOR was inflexible and their actions could be predicted.

Lead vehicles always got hit first.

Recommendations for OPFOR

(No recommendations were made.)

US Force Tactical Characteristics During the Defense Mission

Employed ATGMs forward and then displaced as OPFOR approached.

Employed hit-and-run tactics.

Employed a rolling defense (engage, retrograde, engage).

Employed long range TOW fires.

Conclusions

It was hard to fire on a single target.

US tanks did not have enough time to execute their mission.

US tactics remained essentially the same as those during Experiment I (Friendly Blocking Position).

Recommendations for US Force

Should mass fire on a single target.

Should employ a fighting withdrawal to decimate the OPFOR prior to the final attack.

Should employ a mobile defense which can strike both forward and backward.

OPFOR Opinions About Their Own and the US Force's Strengths and Weaknesses

What each force did well and what they did wrong were fairly consistent across all three missions. Most of the responses mentioned those things which were inherent and basic to good tactical employment in any kind of mission.

Things OPFOR did well

Moved quickly to contact and caught US Force falling back.

Able to change formations quickly.

Made use of suppressive fire.

Rigid formations allowed units to arrive at attack of fixing positions intact without stragglers.

Fired on the move while maintaining a tight formation.

Role played the Soviets well.

Things US Force did well

Utilized good cover and concealment.

Used long range fires.

Dragon teams were hard to see and hit.

Displaced quickly from position to position.

Selected good firing positions.

Fought a fighting withdrawal, especially on the flanks.

Covered avenues of approach well.

Common mistakes by OPFOR

Leaders operated too far to the front; this would identify the leader to the US Force. Should vary the platoon leader's position.

BMPs did not provide enough suppressive fire.

Jamming and bunching-up occurred while advancing.

Fired out of their sectors of fire.

Fire commands were not given quickly enough.

Lack of initiative.

Lack of adequate coordination.

Combat formations got extended due to terrain.

Unable to react to attacks on the flanks.

Common mistakes by US Force

US vehicles took exposed positions on top of hills rather than emplacing in the saddle of the hills, which would provide flank protection.

Premature firing on OPFOR vehicles.

Emplaced vehicles too far from the final defensive position.

Became too decisively engaged and delayed their withdrawal too long.

Movement on falling back was too slow.

Lacked coordination of elements.

Failed to mass fires on a single target.

Failed to kill tanks first.

Dragon teams failed to move after they fired.

US Force: Changes in Operational Techniques Over Time

US Forces started to show better coordination between elements. Their job tasks were relatively unaffected. The skills needed to perform improved with experience, for example, firing position selection improved with experience. They began to critically evaluate the site rather than take the first position available.

Used different weapon placements.

Started to use terrain to their best advantage.

Employed Dragons to gain flank shots.

Used LCVs as a raid-type force.

Employed long range firing.

Engaged OPFOR in small volleys to contain them.

Exposed themselves less.

Units fired fewer rounds and then disengaged; this caused fewer losses.

Used better withdrawal routes.

Coordination between elements became better.

Impact on OPFOR Job Performance

OPFOR players began to understand and appreciate the freedom and flexibility of US tactics. Working within a highly disciplined OPFOR environment not only provided an awareness of OPFOR, but provided a chance to look at themselves in a different perspective.

Being the OPFOR was like playing "follow the leader."

Learning to fire on the move was different.

Driving performance was different with the OPFOR.

Individual initiative was lost when acting as the OPFOR.

Lessons Learned About Themselves and the US Force

Lessons learned from this mission pointed out that the US Force was affected by the high speed mobility of the OPFOR. It is evident that our forces should be trained to react quickly and accurately to this factor. The task is a difficult one and should be experienced under field conditions to fully appreciate the benefits of this type of training.

Lessons learned about themselves

OPFOR attacked at high speed, hoping that it would enhance their survivability.

OPFOR tactics were direct, no frills, just a straight attack in mass.

OPFOR was still disrupting the US Force with their high speed mobility.

OPFOR had to try harder to live up to the game rules.

Lessons learned about the US Force

Learned where the US Force liked to deploy their weapons systems.

If US Force sustained any losses, the battle was over.

There was some doubt that the US could win outnumbered.

US Force was smarter than the OPFOR. They were learning and did not make the same mistake twice.

US Force needed a hard hitting mobile defense that could attack, withdraw, and employ a fighting withdrawal on the flanks of the OPFOR.

APPENDIX A
ARMVAL Job Positions

ARMVAL JOB POSITIONS

US Force	No. Interviewed	OPFOR	No. Interviewed
Tank CMDR (PLT LDR)	1	Tank Platoon Leader	1
Tank CMDR (PLT SGT)	2	Tank Commander	9
Tank CMDR (SEC LDR)	1	Tank Gunner	8
Tank Commander	6	Tank Driver	6
Tank Gunner	6	BMP Platoon Leader	2
Tank Driver	10	BMP PLT LDR (PLT SGT)	1
LCV Gunner	1	BMP Commander	3
LCV Driver	3	BMP Gunner	8
LVTP-7 Section Leader	1	BMP Driver	6
LVTP-7 Commander	3	ZSU 23-4 Commander	1
LVTP-7 Crew Chief	7	ZSU 23-4 Gunner	1
LVTP-7 Gunner	1	ZSU 23-4 Driver	1
LVTP-Driver	15		
LVTP-7 Crewman	2		
TOW Squad Leader	3		
TOW Gunner	6		
TOW Assistant Gunner	2		
TOW Driver	1		
Dragon Gunner	6		
TOTAL	77	TOTAL	47

APPENDIX B
ARMVAL Questionnaires

FRIENDLY

IMPROVEMENT OF TRAINING REALISM FOR TACTICAL UNITS

Section II: Practice Training Prior to Test

1. List the various weapons systems you were assigned to during the practice training prior to the test. In addition, write in next to the weapons system the job position (on that system) that you were assigned to. If you held more than one job on the same system, write that in (e.g., M60, Gunner; M60, Driver; LCV, Driver; LVTP-7, Amphibious Armored Personnel Carrier, Commander, etc.).

<u>Weapons System</u>	<u>Job Position/Title</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2. What things were you trained to do during practice for the test which were different from the way you have been previously trained?
3. During the practice training did you feel that your job(s) duties changed in any way due to the manner in which the Threat operated?
Yes _____ No _____
If YES, list some of the way in which your job changed:
4. What particular things, during practice, were emphasized or stressed the most by your instructors or leaders?
5. During practice, what Threat tactics did you feel were the most effective against you?
6. During practice, what weaknesses did you find in the Threat tactics?
7. You practiced a lot to fight against the Threat. Do you think your regular training would have prepared you for the type of warfare you encountered during the test?
Yes _____ No _____
 - a. If YES, what additional things do you feel should be included in your regular training that would improve your performance against a Threat unit?
 - b. If NO, list those things your regular training must include to improve your performance against a Threat unit:

Section III: Test Experiments

A. Experiment I: Establish Blocking Position to Prevent Threat Advance (Meeting Engagement)

1. After participating in this experiment, compare Friendly and Threat tactics:
 - a. Friendly tactics:
 - b. Threat tactics:
2. During the course of this experiment some developmental tactics were used by the Friendly Force. List any opinions or conclusions that you may have about these "developmental tactics": (I D2)
3. Did you perform your job differently during Experiment I than you normally perform your job during your regular military training?
Yes _____ No _____
If YES, list the differences you found:
4. Each experiment contained a number of trials using different system mixes. Did you do anything different with the Surrogate than you did without the Surrogate?
Yes _____ No _____
If YES, list what you did differently:
5. In your judgment, what were the most common mistakes made by the Friendly Force during the Meeting Engagement (Experiment I)?
6. In your judgment, what were the most common mistakes made by the Threat Force during the Meeting Engagement?
7. List what you feel the Friendly Force did well during the Meeting Engagement:
8. List what you feel the Threat did well during the Meeting Engagement:
9. After going through the Meeting Engagement for the first few times, what tactical changes were made in the way the Friendly Force operated against the Threat Force?
10. What were some of the major things you learned about the Friendly Force and the Threat Force after going through the Meeting Engagement:
 - a. Friendly Force:
 - b. Threat Force:

C. Experiment III: Friendly Force Defending Against a Threat Attack

1. After participating in this experiment, compare Friendly and Threat tactics:
 - a. Friendly tactics:
 - b. Threat tactics:
2. During the course of this experiment some developmental tactics were used by the Friendly Force. List any opinions or conclusions that you may have about these "developmental tactics":
3. Did you perform your job differently during Experiment III than you normally perform your job during your regular military training?
Yes _____ No _____
If YES, list the differences you found:
4. Each experiment contained a number of trials using different system mixes. Did you do anything different with the Surrogate than you did without the Surrogate?
Yes _____ No _____
If YES, list what you did differently:
5. In your judgment, what were the most common mistakes made by the Friendly Force during the Threat Attack (Experiment III)?
6. In your judgment, what were the most common mistakes made by the Threat Force during their attack?
7. List what you feel the Friendly Force did well during the Threat Attack:
8. List what you feel the Threat did well during their attack:
9. After going through the Threat Attack for the first few times, what tactical changes were made in the way the Friendly Force operated against the Threat?
10. What were some of the major things you learned about the Friendly Force and the Threat Force after going through the Threat Attack:
 - a. Friendly Force:
 - b. Threat Force:

Section IV: Miscellaneous

1. Did the speed with which the Threat maneuvered cause you in any way to change the way in which you performed your job, or change the way in which your crew, vehicles, or unit performed?
Yes ☐ No ☐
If YES, describe those things which were affected and the changes that were made:
2. Did the large number of vehicles used by the Threat affect in any way the manner in which you performed your job, or change the way in which your crew, vehicles, or unit performed?
Yes ☐ No ☐
If YES, describe those things which were affected and the changes that were made:
3. Did you have to evolve different methods/techniques to counter the Threat tactics?
Yes ☐ No ☐
If YES, describe what you did:
4. Do you feel that you could have performed as well against Threat tactics if you had not practiced against their kinds of tactics?
Yes ☐ No ☐
5. Of all the weapons systems you were assigned to, what system(s) did you feel was(were) the most effective against Threat tactics?
6. Based on your experiences in the test, what would you include in a training program to train U.S. forces to counter the Threat?
7. Did participating against a well-trained Threat cause you to discover any areas of your job which had to be modified or changed?
Yes ☐ No ☐
If Yes, what areas of your job were modified or changed, and describe what changes you had to make:
8. Do you feel that maneuvering against a well-trained Threat has helped you in understanding "threat" tactics?
Yes ☐ No ☐
9. Maneuvering against a Threat regularly would: (Check the response you most closely agree with)
☐ greatly increase my interest in training
☐ increase my interest in training
☐ have little or no effect
☐ slightly decrease my interest
☐ greatly decrease my interest

10. Having a Threat against which to maneuver would: (Check the response you most closely agree with)
- ☐ greatly increase my own U.S. skills
 - ☐ increase my own U.S. skills
 - ☐ have little or no effect on my own U.S. skills
 - ☐ slightly decrease my own U.S. skills
 - ☐ greatly decrease my own U.S. skills
11. If I am trained as a Threat, it would confuse me when I used Friendly tactics: (Check the response which you most closely agree with)
- ☐ agree
 - ☐ slightly agree
 - ☐ borderline
 - ☐ slightly disagree
 - ☐ disagree
12. Now that you have seen Threat tactics, has your view of the Soviet military changed?
- Yes ☐ No ☐
- In what way?
13. What specific things have you learned from this training that you can do to defeat the Soviets if war should come?
14. Did this experience with Threat change your understanding of the strengths and vulnerabilities of the Soviet military?
- Yes ☐ No ☐
- In what way?

THREAT

IMPROVEMENT OF TRAINING REALISM FOR TACTICAL UNITS

THREAT QUESTIONNAIRE

Section I: Background Information

(PLEASE PRINT CLEARLY)

Name: _____
(Last) (First) (MI)

Rank: _____ **Age:** _____ **Parent Unit:** _____

Primary MOS: _____ Secondary MOS: _____

Job title in which you are presently serving: _____

How long have you been in your present job? _____
(Years) (Months)

Years/Months service in Marine Corps: _____

(Years) (Months)

Years/Months service in Army: _____

(Years) (Months)

Section II: Practice Training Prior to Test

1. List the various weapons systems you were assigned to during the practice training prior to the test. In addition, write in next to the weapons system the job position (on that system) that you were assigned to. If you held more than one job on the same system, write that in (e.g., BMP, Rifle Squad Member; T-62, Gunner; T-62, Driver; etc.).

<u>Weapons System</u>	<u>Job Position/Title</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2. What things were you trained to do during practice for the test which were different from the way you have been previously trained?
3. During the practice training did you feel that the training for a Threat job position differed from the training you received for a Friendly job position?
Yes _____ No _____
If YES, list the differences you found:
4. What particular things, during practice, were emphasized or stressed the most by your instructors or leaders?
- 5a. During practice, list those things you felt the Threat did that were effective against the Friendly Force:
- 5b. During practice, list those things you felt the Friendly Force did that were effective against the Threat Force:
6. During practice, list those things you felt were weaknesses in the way the Threat operated:
7. During practice, did you feel that the Friendly Force improved in their performance against you?
Yes _____ No _____
a. If YES, what things did they improve on?
b. In your opinion, how much practice did it take for the Friendly Force to be able to organize quickly and efficiently to counter the Threat Force?

Section III: Test Experiments

A. Experiment I: Establish Blocking Position to Prevent Threat Advance (Meeting Engagement)

1. After participating in this experiment, compare Friendly and Threat tactics:
 - a. Friendly tactics:
 - b. Threat tactics:
2. During the course of this experiment some developmental tactics were used by the Friendly Force. List any opinions or conclusions that you may have about these "developmental tactics": (I D2)
3. Did you perform your job differently during Experiment I than you normally perform your job during your regular military training?
Yes _____ No _____
If YES, list the differences you found:
4. In your judgment, what were the most common mistakes made by the Friendly Force during the Meeting Engagement (Experiment I)?
5. In your judgment, what were the most common mistakes made by the Threat Force during the Meeting Engagement?
6. List what you feel the Friendly Force did well during the Meeting Engagement:
7. List what you feel the Threat did well during the Meeting Engagement:
8. After the Friendly Force went through the Meeting Engagement for a few times, what changes did the Friendly Force make in their tactics against the Threat Force?
9. What were some of the major things you learned about the Friendly Force and the Threat Force after going through the Meeting Engagement:
 - a. Friendly Force:
 - b. Threat Force:

B. Experiment II. Friendly Force Attacking a Strongpoint

1. After participating in this experiment, compare Friendly and Threat tactics:
 - a. Friendly tactics:
 - b. Threat tactics:
2. During the course of this experiment some developmental tactics were used by the Friendly Force. List any opinions or conclusions that you may have about these "developmental tactics": (II D7)
3. Do you feel that the job duties you performed for the Threat differed significantly from the job duties you perform in your regular job?
Yes ____ No ____
4. In your judgment, what were the most common mistakes made by the Friendly Force during the Attack on a Strongpoint (Experiment II)?
5. In your judgment, what were the most common mistakes made by the Threat Force during the Attack on a Strongpoint?
6. List what you feel the Friendly Force did well during the Friendly Attack on a Strongpoint:
7. List what you feel the Threat did well during the Friendly Attack on a Strongpoint:
8. After the Friendly Force went through the Attack on a Strongpoint for a few times, what changes did the Friendly Force make in their tactics against the Threat Force?
9. What were some of the major things you learned about Friendly and Threat after going through the Attack on a Strongpoint:
 - a. Friendly Force:
 - b. Threat Force:

C. Experiment III: Friendly Force Defending Against a Threat Attack

1. After participating in this experiment, compare Friendly and Threat tactics:
 - a. Friendly tactics:
 - b. Threat tactics:
2. During the course of this experiment some developmental tactics were used by the Friendly Force. List any opinions or conclusions that you may have about these "developmental tactics": (III D9, III D10, III D13)
3. Do you feel that the job duties you performed for the Threat differed significantly from the job duties you perform in your regular job?
Yes ☐ No ☐
If YES, list what job differences you found:
4. In your judgment, what were the most common mistakes made by the Friendly Force during the Threat Attack (Experiment III)?
5. In your judgment, what were the most common mistakes made by the Threat Force during their attack?
6. List what you feel the Friendly Force did well during the Threat Attack:
7. List what you feel the Threat did well during the Threat Attack:
8. After the Friendly Force went through the Threat Attack a few times, what changes did the Friendly Force make in their tactics against the Threat Force?
9. What were some of the major things you learned about the Friendly Force and the Threat Force after going through the Threat Attack:
 - a. Friendly Force:
 - b. Threat Force:

Section IV: Miscellaneous

1. Did you encounter any problems in operating at the speed with which the Threat maneuvers?
Yes ____ No ____
2. Did you encounter any problems in operating with the large Threat Force ratio?
Yes ____ No ____
3. Do you feel that you benefited from taking Threat training?
Yes ____ No ____
IF YES, describe some of the benefits:
If NO, describe why you feel it was not beneficial:
4. Do you feel that it would benefit every service member to undergo some type of Threat training?
Yes ____ No ____
5. What are some of the changes you would make to improve the Threat training that you received?
6. Could you predict with any degree of accuracy the actions the Friendly Force would make against the Threat?
Yes ____ No ____
7. How difficult was it to learn to do the Threat tactics? (CHECK ONE RESPONSE)
____ very difficult
____ difficult
____ somewhat difficult
____ no difficulty
8. List the most difficult tasks, if any, you had to learn in order to operate as a well-trained Threat member:
If none of the tasks were difficult, just place a check mark (✓) in the blank space: ____
9. If at some time in the future, you had to fight against a nation that used Threat tactics, check those statements you feel apply to you and the Threat training you received:
____ better prepared because I took the Threat training
____ would do just as well without having to undergo Threat training
____ don't feel that Threat training would help me
____ feel that I have a better understanding and insight into how the Threat think and perform
10. Threat takes too much time from regular training: (Check the response you most closely agree with)
____ agree
____ slightly agree
____ borderline
____ slightly disagree
____ disagree

11. Training as a Threat would cause confusion when using Friendly tactics:
(Check the response you most closely agree with)

☐ agree
☐ slightly agree
☐ borderline
☐ slightly disagree
☐ disagree

12. Now that you have seen Threat tactics, has your view of the Soviet military changed?

Yes ☐ No ☐
In what way?

13. What specific things have you learned from this training that you can do to defeat the Soviets if war should come?

14. Did this experience with Threat change your understanding of the strengths and vulnerabilities of the Soviet military?

Yes ☐ No ☐
In what way?